The Boston Medical and Surgical Journal

TABLE OF CONTENTS

April 12, 1923

ORIGINAL ARTICLES.

Smallpox and Vaccination. By *Benjamin White, Ph.D.*, Boston 523
Granuloma Inguinale in Boston. By *George Cheever Shattuck, M.D.*, Boston 530
Fish-Egg Mucocele of the Appendix; A Cystic Type of Chronic Catarrhal Appendicitis, with Report of a Case. By *William Reid Morrison, M.D., F.A.C.S.*, Boston 532
Excising the Appendix Vermiformis. Technique. By *Weller Van Hook, M.D.*, Chicago 537
The Full-Time School Physician. By *Hugh Grant Rowell, M.D.*, New Bedford, Mass 540
Are Amputation Stumps Receiving Adequate After-Care? By *Carl Bearse, M.D.*, Boston 542
High and Low Enemata—A Mistaken Conception. By *S. W. Ellsworth, M.D.*, Boston, and *F. E. Wheatley, M.D.*, Boston 545

BOOK REVIEWS.

The Biology of Death. By Raymond Pearl 547
The Successful Physician. By Verlin C. Thomas, M.D 547
Protists and Disease. By J. Jackson Clarke 547
High Frequency Practice. By Burton Baker Grover, M.D 548
The Kingdom of Evils. By E. E. Southard, M.D., and Mary C. Jarrett 548

Current Literature Department 549

EDITORIALS.

Longevity 553
Sleeping Sickness 554
Smallpox and Vaccination 554
Professional Ethics 555
The Rational Attitude towards the X-Rays in Diagnosing Digestive Diseases 556
Radium 556
Hygeia—A New Journal 557
Attempts to Secure Bizarre Health Legislation 557

MISCELLANY.

The National Health Council 557
Report on the Bacteriological Laboratory Maintained by the Near East Relief in the Caucasus 558
The Standardization of Biological Stains 559
The United States Public Health Service and Prevention of Disease 560
Note on a Case of Veronal Poisoning 560
Public Health as a Life Career 561
Entertainment and Education of Waiting Patients 561
Additional Evidence for Vaccination 561
A Meeting of Real Importance 561
Antirabic Treatment in New York 561

News Items 562

CORRESPONDENCE.

Vaccination. *Charles Greene Cumston* 563
Maternal and Infant Welfare. *James A. Spalding* 563
The Chicago Lying-in Hospital and Dispensary. *Robert B. Kennedy, M.D.* 564
An Opportunity to Exert Influence. Nicholas DuVally 564

NOTICES.

Preliminary Program of the American Climatological and Clinical Association 564
Boston Tuberculosis Association Institute for Nurses 565
Boston Medical History Club 565
The Boston Surgical Society Will Entertain the Tri-State Medical Society 565
Boston City Hospital 565
Middlesex South District 565
Children's Hospital 565
Notice to Massachusetts Medical Society Members 565
Notice to Direct Subscribers 566
Public Health Lecturers for the Year 1923 566
Invitation to Physicians 566

Society Meetings 566

Original Articles.

SMALLPOX AND VACCINATION.

BY BENJAMIN WHITE, PH.D., BOSTON,

Director, Division of Biologic Laboratories, Department of Public Health, the Commonwealth of Massachusetts.

SMALLPOX in the year 1721 attacked 5989 persons out of the 11,000 inhabitants of Boston and killed 840, while in 1730 it claimed 500 victims out of a sick roll of 4000. In the early part of the nineteenth century in Great Britain 45,000 persons died annually of smallpox. Early in the nineteenth century, Lord Macaulay wrote: "The smallpox was always present, filling the churchyards with corpses, tormenting with constant fears all whom it had not yet stricken, leaving on those whose lives it spared the hideous traces of its power, turning the babe into a changeling at which the mother shuddered, and making the eyes and cheeks of the betrothed maiden objects of horror to the lover."

In 1796 Jenner discovered the protective value of smallpox vaccine; and now in the year 1922 in the State of Massachusetts, with a population of nearly 4,000,000 of people, there were only two cases of smallpox and no deaths. Protective vaccination has been responsible for the mitigation of this great human scourge.

This statement is accepted as a truism by those best qualified to render an opinion. The older practitioners, who knew smallpox in its frequent storms and its most virulent and loathsome forms; the sanitarian practicing his profession in vaccinated and unvaccinated countries; the public health worker trained in preventive medicine, and responsible for the health of the people; and the statistician who studies all the statistics and along with them the economic and social conditions of various races in various times,—all know the truth of this statement. On the other hand, those who know not smallpox in its various aspects, those who hold a selfish or narrow conception of personal liberty, those who select only such statistics as may seem to prove their contentions, and those who would discredit the achievements of preventive medicine, take issue with this statement.

In view of our present knowledge, it would seem unnecessary to produce further evidence as to the efficacy of vaccination in protecting any population against smallpox, but, through the propaganda of agencies opposed to the established schools of medicine, a certain confusion has arisen and it now seems a desirable time to correct some of the misapprehensions and to clarify some of the misconceptions which have resulted from this propaganda. This, perhaps, can best be done by taking up one by one some of the various contentions which have been presented. The main objections raised are that smallpox vaccine virus is a dangerous and repulsive agent containing disease-producing bacteria; that vaccination jeopardizes the vaccinated, causes numerous diseases, and is followed by even more unfortunate results; that compulsory vaccination is an infringement of personal liberty; that vaccination does not protect against smallpox, and that public vaccination is a failure.

1. *Vaccine Virus.*—There is no doubt that in the years before federal regulation of virus manufacture there was little or no control of vaccine establishments; that the preparation of vaccine was not the scientific procedure that it has since become, and that the product may have fallen below the high standard of purity now set by law. Yet in those days the records of harmful results were few in comparison to the large number of vaccinations done, and with the exception of a few notorious instances, the vaccine virus was rarely proved to be responsible for the results reported. It was in those very years, moreover, that the practice of vaccination was first widely adopted, and smallpox was generally brought under control in countries where popular preventive inoculation was carried out.

Since 1902 all vaccine virus prepared and sold in this country has been subject to governmental regulations. The plants, personnel, organization and conduct of vaccine laboratories, and the methods of preparing, testing and distributing the product must conform to the exact and rigid specifications drawn up by the United States Public Health Service. These establishments are regularly inspected, and from time to time separate lots of the vaccine are tested for purity and potency at the United States Hygienic Laboratory. The tests, which must be applied to every lot of vaccine virus whether or not the lot is submitted or required for federal test, are devised and are entirely adequate for detecting the presence of any disease-producing bacteria or other harmful substance in the vaccine. No lot, of course, is distributed until it has been found to conform to every requirement.

Smallpox vaccine virus, as it is produced in this country today is a highly refined, thoroughly safeguarded and harmless biologic agent. The burden of proof of any claimed fault should be made to lie more heavily than in the past upon the accuser.

2. *Alleged Dangers of Vaccination.*—The long list of accidents, infections, diseases and deaths alleged to have been caused by vaccine, furnishes, with a few exceptions, a conspicuous example of the *post hoc propter hoc* method of reasoning. This statement is not made in a spirit of jest or for the purpose of evading the issue, but to emphasize the loose manner of making serious accusations against a procedure so important to human welfare.

The practice of vaccination comprises three factors: (1) the vaccine virus, (2) the operation of vaccination, (3) the care of the vaccinated area. In addition to this, although not a part of vaccination itself, there must be considered the many circumstances influencing the person's well-being both before and after the operation of vaccination.

The vaccine virus has already been discussed. The operation of vaccination may be justly considered as a minor surgical operation demanding the observance of modern aseptic technic, and, as it is performed today, because of these precautions, involves less risk than the scratching of the skin with a clean pin. Beyond this point the physician can be charged only with a partial responsibility, because frequently the vaccination wound is at the mercy of the fumbling child or exposed to the possible dangers of neglected personal hygiene. To charge the vaccine or the vaccinator with such subsequent contamination of the vaccinated area is to misplace the blame.

The last consideration, that is, the history of the person prior or subsequent to vaccination, is the one most frequently misinterpreted. On the one hand, in the case of persons suffering from illness, or in a seriously impaired physical condition, vaccination is neither recommended nor required, because it is obviously unreasonable to make any added demand upon physiological functions taxed by existing disease or otherwise reduced. Provision is usually made for the exemption of such persons from compulsory vaccination when a proper medical opinion is submitted. On the other hand, the anti-vaccinationist seizes upon any case of sickness or death in a recently vaccinated person, and forthwith ascribes it to the preventive inoculation. The vaccine, sometimes, is condemned as harboring meningococci and thereby causing cerebrospinal meningitis, even though the case occurs in the epidemic season, and in spite of the fact that the meningococcus is one of the most delicate of bacteria and even under the most favorable conditions scarcely survives outside the body more than a week. Vaccine is likewise held responsible for infantile paralysis, syphilis, tuberculosis and cancer, and by the same absurd method of reasoning.

In contrast to these lurid claims there may be cited the personal experiences of physicians, public health officials and workers in vaccine laboratories, who represent a repeatedly and thoroughly vaccinated group. Among such persons, vaccinations and re-vaccinations by multiple inoculations through successive years bear witness to the harmlessness of the procedure, to say nothing of the complete protection thus afforded against smallpox.

3. *Compulsory Vaccination an Alleged In-*

fringement of Personal Liberty.—The validity of the laws making vaccination a requisite for school attendance has been established by the courts. The superior court of Cook County, Illinois, in a decision handed down in 1922 stated:[1]

> "It is true that every man and woman has a right to determine for himself or herself whether he or she will be vaccinated. They do not have to believe in doctors; they may say 'throw physic to the dogs'; they have a right to do anything they please in that regard so long as they do not injure someone else.
>
> "Public officials have a right to be guided by what science has demonstrated to be as near the truth as truth can be ascertained, and science has come to the conclusion universally that vaccination is a preventive of smallpox, notwithstanding that some people may differ with it. Science has agreed upon that proposition and I think the Supreme Court of this state properly has said so, in view of the experience of years, ever since Jenner discovered vaccine.
>
> "The parents of this child have a constitutional right, and if they do not want their child vaccinated he does not have to be vaccinated, but when he goes to the public school they must recognize the greatest good to the greatest number, and if there is danger of smallpox, it is the duty of the Superintendent of Schools to see that the children are vaccinated or that they are excluded from the schools until such time as there is no longer any danger of the disease spreading."

The operation of such a law has been held by the Supreme Court of the Nation to violate no constitutional rights.[2]

It is, furthermore, the experience of health officers that in times of smallpox epidemics some of the objections and the conscientious scruples disappear, and those who have been most firm in their opposition eagerly seek the protection afforded by vaccination.

4. *Alleged Failure of Vaccination to Protect.*—The most extravagant objectors hold that vaccination not only fails to protect against smallpox but actually favors its spread; the more conservative content themselves with the claim that vaccination at most affords a poor individual protection, that its general practice does not reduce the incidence of or mortality from smallpox, and that sanitary measures are far more efficacious in holding at bay or stamping out this plague.

In this discussion it must first be emphasized that a vaccination is not a vaccination unless it is successful, that is, unless the operation is followed either by a typical "take," or by the immediate reaction, or accelerated "take" of partial immunity. It should be further pointed out that the immunity produced by vaccination is a relative immunity, depending upon the degree of the "take," the number of protective inoculations, and the lapse of time between vaccination and exposure. Unfortunately in vital statistics these factors—particularly the first mentioned—are rarely taken into account, and a vaccination is oftentimes recorded whether or not it was successful. However, taking the statistics even in this broader sense, they furnish ample evidence of the protection afforded by preventive inoculation.

Among the many reports available, the figures compiled of the mild Oldham, England, epidemic of 1921-1922 may be cited as pertinent[3]:

Age-group (years)	Vaccinated in infancy	Unvaccinated	Total number of cases
0- 5	0	5	5
5-10	0	8	8
10-15	0	9	9
15-20	0	6	6
20-30	0	4	4
30-40	3	5	8
40-50	6	0	6
50-60	5	0	5
Over 60	3	0	3
Total	17	37	54

Even more conclusive is the analysis of the cases occurring in the more severe Glasgow outbreak of 1920-1921[4]:

Age group	Vaccinated	Died	Mortality Per cent.	Unvaccinated	Died	Mortality Per cent.
0- 1	0	0	0	16	11	68.7
1- 5	1	0	0	32	11	34.3
5-10	8	0	0	41	10	24.3
10-15	21	0	0	23	6	26.0
Total	30	0	0	112	38	33.9

Passing to the protection of the general population afforded by vaccination against smallpox, the study of Force and Leake covering vaccination and smallpox records in 20 states should be consulted.[5] The states which have the best vaccination laws, and in which the law is best enforced as well as best supported by the general public may be put in the following order: 1, Eastern (4 states); 2, Southern (7 states); 3, Central (6 states); and 4, Pacific (3 states). The accompanying graph strikingly shows how these states fare as to smallpox. (Fig. 1.)

These authors conclude that smallpox in this country is dependent upon popular vote.

The study of Leake and Force has been brought up to date by telegraphic reports on the cases of smallpox occurring during 1922 in the states shown in the accompanying graph. (Fig. 2.) Here it is again apparent that those states which have the best vaccination laws have the smallest number of smallpox cases.

A similar study, embracing American and Canadian cities, was made by Frankel,[6] and here

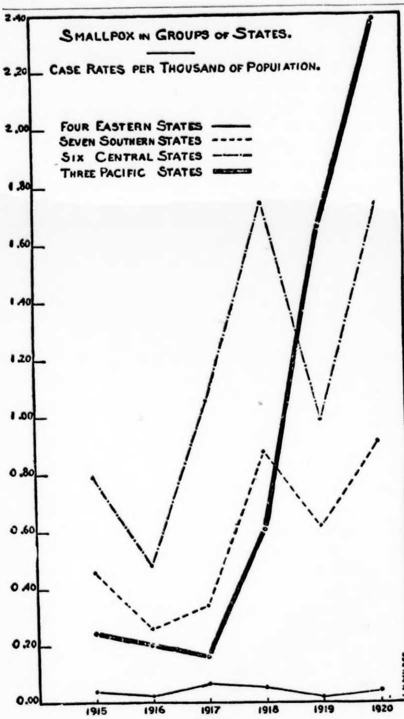


FIG. 1.

again it is demonstrated that vaccination, properly performed, protects against smallpox, and that the community with the least number of unprotected persons is likely to have the least smallpox. The figures show, and the warning is sounded that in the unvaccinated communities smallpox is increasing, and to this might be added the proof that with this increase the disease develops a deadlier form.

The truth of these conclusions is borne out by the official statistics for the world at large, but by garbling statistics, the opponents of vaccination would have us believe otherwise. The best example of their method of misuse of facts is shown in their contentions concerning the efficacy of vaccination in Japan. In one of their authoritative publications[7] it is stated that, Japan has been perhaps the most extensively vaccinated country in recent times, with rigid compulsory laws requiring re-vaccination at different periods of infant and adult life; and then, that much-vaccinated Japan, instead of being made immune from smallpox epidemics by general vaccination and re-vaccination, seems to have suffered from the worst epidemics of smallpox known in modern times, not only worse than in poorly vaccinated countries like England and the United States, but worse than experienced in old times before the days of vaccination! They claim to base this statement on the U. S. Public Health Reports for September 2, 1910. Then they select the ten years ending in 1908 to prove their case.

The official records of the Imperial Japanese Government tell a different story. The facts are these: From the year 123 B.C. to the restoration of the Meiji Era (1875) about fifty epidemics broke out, each one of which extended over a number of years, sweeping all through the country, diminishing the population considerably, and devastating the fertile country everywhere.[8]

Vaccination was first introduced into the country in 1849, but it was not until 1874 that a vaccination law was enacted. In 1876 regulations for the prevention of smallpox were promulgated, which provided for compulsory vaccination. These regulations, however, were not strictly enforced because in the epidemic of 1878-1882, 63 per cent. of those having smallpox were found never to have been vaccinated. In 1885 the law was revised, and for the violation of the compulsory feature a fine of not less than five sen (2½ cents) or more than 50 sen (25 cents) was imposed. In 1909 a new revision of the law was made, strengthening the compulsory feature, and providing that each newborn baby shall be vaccinated within 90 days after birth and re-vaccinated at the tenth year from birth. If the primary or secondary vaccination is unsuccessful the child shall be revaccinated before December of the next year. The final result of the operation of the revised law of 1909 is shown in the statistics for 1920, when 88.8 per cent. of all children up to nine years of age had been vaccinated—87.94 per cent. successfully; and 93.91 per cent. of all children of nine years and over—50.43 per cent. successfully, giving a total of 78.09 and 47.36 per cent. respectively of all Japanese children before and after the age of nine who have been successfully vaccinated. In other words, at the present time Japan represents a highly but by no means a completely vaccinated nation.

The effect of the enactment, first of the vaccination law of 1874, then of the more strict law of 1885, and finally of the still more rigid compulsory law of 1909, can be seen by a glance at the table given below. The figures are taken from the official statistics of the Imperial Japanese Government, graciously tabulated and submitted by the Director of Public Health, Japanese Ministry of the Interior. The division into the three periods has been made so as to include the 20 years cited by the anti-vaccinationists (1889-1908) and then to give all available data previous and subsequent to that period.

Year	No. of smallpox cases per 100,000 population	No. of deaths from smallpox per 100,000 population
1880-1888 inclusive	43.41	9.97
1889-1908 inclusive	19.07	5.47
1909-1921 inclusive	2.25	0.59

The history of Japan, therefore, when all the facts are taken, no longer is an asset but a heavy liability to the anti-vaccinationists, because it not only shows their mendacity of method, but offers a most impressive example of the efficacy of vaccination in protecting a people against smallpox. In Japan smallpox has been held at bay and is disappearing as a result of compulsory vaccination.

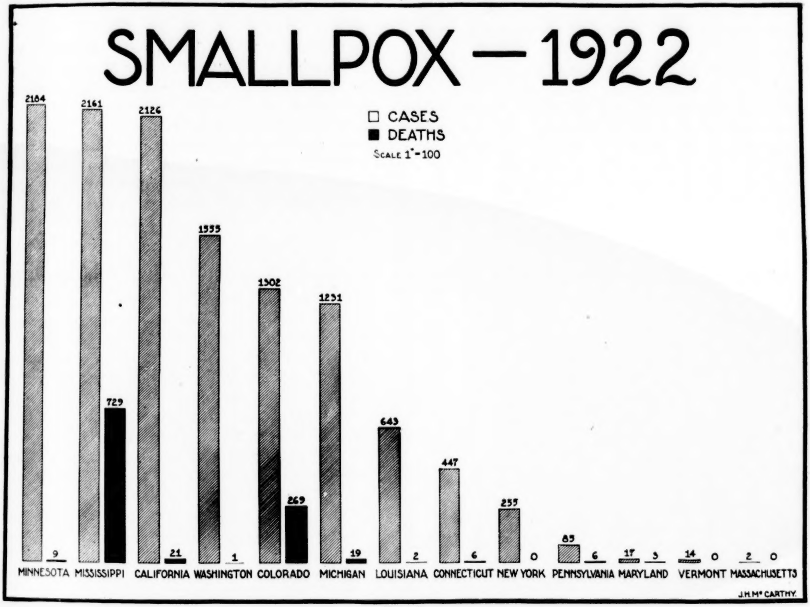


FIG. 2

The Philippine statistics, like those of Japan, have been perverted by the anti-vaccinationists, who in their published statements attempt to force the impression that vaccination in these islands is a signal and direful failure. Here is a specimen of such a statement,* and incidentally an example of their peculiar method of analyzing and presenting statistical data:

VACCINATION.
Does It Protect?
Philippines.
Vaccination Universally Compulsory.

Entire population of 10,000,000 vaccinated and revaccinated over and over again.

SMALLPOX RESULTS

	Cases	Deaths
1918	47,639	16,447
1919	65,180	44,408
Totals	112,819	60,855

See the 1918 and 1919 Reports Philippine Public Health Service.

In this statement there are two features worthy of comment: first, the specious statement that the entire population has been vaccinated and revaccinated over and over again; and second, the deliberate choice of two single years. Although this advertisement appeared in June, 1922, no mention is made of the statistics of 1920 and 1921.

The whole story of vaccination in the Philippines offers one more impressive example of the early ravages of smallpox and of the power of vaccination to abate this scourge. The truth of the matter has been best expressed by one, who by his training, experience, and his wholehearted devotion to the welfare of the people of the Philippines, is best qualified to speak. An extract from a letter under date of April 29, 1922, from Major-General Leonard Wood, Governor-General of the Philippine Islands, follows:[9]

"According to the reports of the Philippine Health Service, 1918, there have been even a larger number of deaths reported than quoted by your correspondent.* When the records are analyzed they show that something like 90 per cent. of the deaths occurred in children, most of whom were born since 1913. The records show that vaccination has been steadily continued since 1913, but on investigation it was found that, owing to the inefficient inspection, vaccination consisted mostly in destroying the vaccine and submitting reports to the main office that it had been applied. In brief, a huge unvacci-

---

*Advertisement of Medical Liberty League, Inc., Boston *Herald*, June, 1922.

*Who inquires concerning the figures for 1919.

nated population had accumulated in the Philippines; it only required a spark to set it into conflagration, and in a short time a smallpox epidemic began among those unvaccinated children which assumed huge proportions, and eventually gained such virulence that it affected persons who, under ordinary conditions, would have been safe. The figures of the City of Manila bear out this statement in a striking manner. Among 989 deaths that were recorded all but 100 occurred in children under 10 years of age. Again, of 1826 cases received at the Manila Infectious Disease Hospital, 813 had never been vaccinated, and of these 680 died; 336 had been vaccinated with negative results; of these 249 died. Of the total 1826 cases received at the hospital only 176 had evidence of vaccination, many of which were undoubtedly performed many years prior to the attack of the disease. Among this number there were 60 deaths. During 1919 more effective vaccination was begun, and there was such a decline in the smallpox epidemic that by 1920 there were only five cases in Manila, and none in 1921.

From the accompanying table it will be seen that after effective vaccination had been established in the City of Manila there were no deaths for seven years. It is also interesting to observe that before the days of systematic vaccination in the Philippine Islands that there were approximately 40,000 deaths per year from smallpox.

It is apparent, therefore, that the foregoing information makes concrete proof of the value and desirability of vaccination when it is effectually applied. . . ."

Yours very sincerely,
(Signed) LEONARD WOOD.

Dr. William O. Stillman,
President American Humane Association,
Albany, N. Y.

Although the whole Philippine story is rich in confirmatory evidence,[10] it would seem superfluous to add anything to General Wood's conclusive summary.

There remains to be discussed one other claim of those opposed to vaccination, which is that the exercise of modern sanitary and hygienic measures is in itself sufficient to control and conquer smallpox. They point to Great Britain as a country in which the practice of vaccination is declining (through the modification of the compulsory vaccination laws) and also in which smallpox has decreased as sanitation, isolation and other benign conditions of human life have increased.[11] Let it be understood that nothing that is written here is to be taken as belittling the value and importance of isolation or thorough sanitation in controlling smallpox, but it should be emphasized that these measures pertain to those already infected with the disease and serve to remove and seclude from the community potential sources of infection. They cannot, obviously, be applied to the unsuspected or undetected case, particularly in the early, but nevertheless, highly infectious stages of the dis-

DEATHS CAUSED BY SMALLPOX IN THE CITY OF MANILA—GROUP OF AGES (TRANSIENTS AND RESIDENTS INCLUDED).

Year	30 days	30 days to 1 yr.	1-2 years	3-4 years	5-9 years	10-14 years	15-19 years	20-29 years	30-39 years	40-49 years	50 years and over	Unknown	Total
1904		3	10		1		3	10		1		1	29
1905			1				1						2
1906		2	1				2						5
1907	1												1
1908		16	58		20	3	9	9	5	1	1		122
1909		4	11		1		2	5	2				25
1910													0
1911													0
1912													0
1913													0
1914													0
1915													0
1916										1			1
1917		1	1										2
1918	3	193	193	336	148	23	40	44	5	2	2		989
1919	2	10	6	13	9	1	4	7	3				55
1920		1	3					1					5
1921													0

ease. It is protective inoculation for the entire community only which can be relied upon, by rendering susceptibles insusceptible, to save the community from the invasion of smallpox or to prevent its spread. As the British Ministry of Health[12] put it, "But when smallpox breaks out, it visits with strict impartiality healthy and unhealthy districts, and the incidence of attack and death falls on rich and poor alike subject only to one condition—the absence or the presence of the protection afforded by vaccination."

Great Britain, it is true, enjoys a comparative freedom from smallpox, and it is also true that since the enactment of the Vaccination Act of 1898, more and more parents have claimed the broadened exemption privileges, with a consequent decrease in the proportion of inhabitants vaccinated. The Ministry of Health estimates that between 1910 and 1919 over two and a half million children under twelve years of age had been exempted and a further quarter of a million are added to this number year by year. It may be pointed out, however, that Great Britain, owing to the long operation of its compulsory vaccination laws and the continued operation of its modified laws, represents a well, but only partially vaccinated nation. With these points in mind it would be logical to expect that smallpox might occur in epidemic form in that country, and that year by year the proportion of cases occurring in the lower age groups would increase. That is precisely what has happened. Great Britain enjoys the low smallpox incidence and mortality rate characteristic of vaccinated countries, yet epidemics are by no means unknown. Glasgow in 1900-1901 reported 1,810 cases with 238 deaths, and 1920, 542 cases with 113 deaths. In Nottingham there was an unbroken series of cases (113 in all) between May, 1921, and January, 1922, and these in spite of strict quarantine and isolation. Leicester from December, 1902, to October, 1903, with 394 cases, and from December, 1903, to August, 1904, with 321 cases practically repeated the experience of ten years before, and this despite the fact that this is the home of the "Leicester Method," so dear to the anti-vaccinationists.

The reason for the failure of this method of notification, isolation, and hospitalization to prevent smallpox may be found in the report of Dr. MacGregor of the Glasgow Public Health Department.[13]

NUMBER OF DAYS ELAPSING BETWEEN ONSET AND ADMISSION TO HOSPITAL.

Days	Cases	Days	Cases	Days	Cases
1	12	9	2	22	2
2	66	10	1	24	2
3	136	11	2	25	1
4	126	14	1	26	1
5	73	16	1	29	1
6	49	17	1	32	1
7	27	20	2	40	1
8	7	21	2	41	1

SUMMARIZED IN WEEKS.

Week of illness	Cases
First week	489
Second week	13
Third week	6
Fourth week	6
Fifth week	2
Sixth week	2
Total	518

This table shows that a considerable number of cases were first detected late in their illness, and, therefore, remained for some time as sources of infection to the remainder of the community.

That the disease, as predicted, is claiming more and more victims among the children, as a result of the exemption allowed, is shown by the figures for the last two Glasgow epidemics, as well as those for the Nottingham epidemic.[14]

SMALLPOX (GLASGOW, 1900-01 AND 1920).

Percentage of Children under 15 Years in the Vaccinated and Unvaccinated Groups.

	Vaccinated		Unvaccinated	
	1900-01	1920	1900-01	1920
Percentage under 15 ..	7.7	7.2	65.6	87.8
Percentage over 15 ..	92.3	92.8	34.4	12.2

SMALLPOX IN NOTTINGHAM, FEBRUARY, 1921, TO JANUARY, 1922.

Cases Among Vaccinated and Unvaccinated Arranged in Age Groups.

Vaccinated.

Under 10	10 to 20	20 to 30	30 to 40	40 to 50	Over 50
	0	0	9	5	7

Unvaccinated.

Under 10	10 to 20	20 to 30	30 to 40	40 to 50	Over 50
50	25	12	2	1	2

All vaccinated persons attacked were over 30 years of age, whereas 87 out of 92, or 94.6 per cent. of the unvaccinated persons attacked were under 30 years of age.

Another noteworthy feature of the Glasgow report is that the vaccinations of children under the age of 15 represent not only the children born in that year, but also the accumulation of fifteen years arrears, or children who had previously been exempted by their parents. In the presence of the disease many put aside their conscientious objections and sought the boon of protective inoculation for the neglected children. Finally, the most recent English epidemic, starting in Poplar Workhouse and spreading to London, small though it was, awakened the people to the menace of smallpox to the unvaccinated, and sent even the previous objectors scurrying to the health officers for the protection afforded by vaccination. It is an interesting commentary on the situation, that as a result of this outbreak, English underwriters now offer to insure a person against smallpox and charge one-half the rate if the assured has been vaccinated within ten years.

A dispassionate study of the smallpox and vaccination histories of all countries leads inevitably to the conclusions best summarized by Rosenau[15]—conclusions which have stood the test of time and which are accepted the world over by those charged with the protection and conservation of the public health.

CLAIMS FOR VACCINATION.

1. Duly and efficiently performed it will protect the constitution from subsequent attacks of smallpox as much as that disease itself will.
2. It protects the individual against smallpox for a period which has not been determined mathematically for the individual, but which averages about seven years.
3. The protection may be renewed by a second vaccination.
4. Persons successfully vaccinated on two occasions are usually immune against smallpox for life.
5. Vaccination and re-vaccination systematically and generally carried out confer complete protection to a community or a nation. In other words, while the individual protection is not always lasting, the communal protection is absolute.
6. A person vaccinated once and at a later time contracting smallpox as a rule has the disease in a less serious form than unvaccinated persons (varioloid). The degree of favorable modification of smallpox is in inverse proportion to the period of time elapsing between the vaccination and the attack of smallpox.
7. The beneficial effects of vaccination are most pronounced in those in whom the vaccine affection has run its most typical and perfect course.

A similar dispassionate examination of the statements and arguments contained in the published books, periodicals and leaflets of the antivaccinationists leads us inevitably to the conclusion that by selecting only such figures as would seem to serve their purpose, by misinterpreting official records, by making irresponsible and unfounded charges against vaccine manufacturers, vaccination and public health officials, the antivaccinationists seek to stir the sentimental, encourage a sense of outraged personal freedom in the selfish, and thus arouse and organize among the uninformed active antagonism against vaccination. Theirs is a propaganda fraught with danger to the public—moreover, it is a propaganda directed against the modern school of preventive medicine.

REFERENCES.

1 Jour. Am. Med. Assn., Jan. 28, 1922, 78, 4.
2 Zucht vs. King et al., decided Nov. 13, 1922. U. S. Pub. Health Rep., Nov. 24, 1922, xxxvii, 47, p. 2903.
3 U. S. Pub. Health Rep., Dec. 22, 1922, xxxvii, 51, pp. 3149, 3150.
4 U. S. Pub. Health Rep., Sept. 1, 1922, xxxvii, 35, p. 2111.
5 Force, John N., and Leake, James P.: Smallpox in Twenty States, 1915-1920. U. S. Pub. Health Rep., Aug. 19, 1921, xxxvi, 33, 1979.
6 Frankel, Lee K.: Smallpox Incidence and Measures of Control in American and Canadian Cities, 1919 and 1920. Am. Jour. Pub. Health, Nov., 1921, xi, 11, 979.
7 Higgins, Charles M.: Horrors of Vaccination, pp. 53, 54. Published by the author, Brooklyn, N. Y., 1920.
8 Kitasato, S.: Vaccination and Smallpox in Japan. Jour. Am. Med. Assn., March 25, 1911, lvi, 12, 889.
9 Boston Med. and Surg. Jour., June 22, 1922, 186, 25, p. 865.
10 Heiser, Victor G., and Leach, Charles N.: Vaccination in the Philippines Still Effective. Jour. Am. Med. Assn., July 1, 1922, 79, 1, 39.
11 Higgins: *Loc. cit.*
12 Ministry of Health: Reports on Public Health and Medical Subjects, No. 8, Smallpox and Vaccination. His Majesty's Stationery Office, London, 1921, p. 6.
13 MacGregor, A. S. M.: Some Features of the Smallpox Outbreak in Glasgow, 1920.
14 U. S. Pub. Health Rep., April 21, 1922, xxxvii, 17, p. 947.
15 Rosenau, M. J.: Preventive Medicine and Hygiene, 4th edition, D. Appleton, N. Y., 1921, p. 20.

GRANULOMA INGUINALE IN BOSTON.

BY GEORGE CHEEVER SHATTUCK, M.D., BOSTON.

[From the Service for Tropical Diseases of the Boston City Hospital.]

Granuloma inguinale or "ulcerating granuloma of the pudenda," according to Manson-Bahr,[1] "is widely diffused in India, Guiana, Brazil, Papua and northern Australia, and sporadically in the southern United States, the West Coast of Africa and southern China," but has been recognized in the United States only for a comparatively few years.

Granuloma inguinale is an extremely chronic infectious disease characterized by ulcerating granulomatous swellings situated in the skin and subcutaneous tissues. The disease generally, but not invariably, is localized on or near the genitalia and is usually, but not necessarily, of venereal origin. Syphilis or other forms of venereal disease may be coincident. The disease is far more common in negroes than in whites.

Medicinal treatment, aside from tartar emetic intravenously, is practically without effect and spontaneous cure seems not to take place. After surgical intervention recurrence is the rule. Consequently, when not correctly diganosed, the disease generally persists for many years, the lesions slowly extending the while.

Permanent cure can be effected in nearly all cases by proper use of intravenous injections of tartar emetic.

The cause of the disease is not certainly known, but Donovan[2] found in the lesions large mononuclear phagocytic cells containing a peculiar organism which has since been pretty constantly found by other students of the disease. The best illustrations of this organism are those of Aragao and Vianna[3]. The organism is now generally considered to resemble the bacillus of rhinoscleroma.

A list of references to articles on inguinal granuloma in the United States is appended. It is believed that, heretofore, no case has been reported from New England.

The three cases to be reported were encountered in Boston. The first patient was treated at the Boston City Hospital. The other two cases were patients of Dr. E. G. Crabtree, who kindly furnished me with his notes and gave permission to publish them. For the sake of brevity the records of all three have been condensed.

The first case was typical clinically and microscopically but, apparently, the patient had syphilis as well as inguinal granuloma.

The second case was somewhat less characteristic clinically than the first, but the microscopic findings were highly suggestive of inguinal granuloma. The diagnosis in the third case is questionable.

The second and third cases, if indeed they were cases of inguinal granuloma, are unusual in that they yielded to ordinary surgical measures.

CASE 1. Admitted to Skin Service, Boston City Hospital, March 18, 1922, and readmitted to the Service for Tropical Diseases, July 3, 1922. Negro, age 32, born in South Carolina and has lived for two to three years in Roxbury, Massachusetts; occupation, longshoreman.

Present illness: about five years ago, while still in Charleston, South Carolina, the patient noticed for the first time a small lump over the left inguinal region. At the same time he discovered a small ulcer on the penis. The lesion in the groin ulcerated subsequently and has since extended gradually. There have been exacerbations and remissions in its activity, but it has never disappeared. The ulceration on the penis extended to the foreskin where lumps also appeared. The only subjective symptoms were slight burning and itching.

Physical examination: when first seen, the patient's general condition was good and aside from the lesions to be described, nothing abnormal was found.

In the left groin there was an oval ulcerated area 7 cm. long and 4.5 cm. wide. The surface was grayish-red in color and a foul discharge exuded from numerous small pockets in the lesion. The ulcer extended over a tough, granulomatous mass which seemed about 1 cm. in thickness and which was elevated about 0.5 cm. above the surrounding skin. The mass was embedded in the skin and subcutaneous tissues, but was not adherent to the underlying structures over which it was freely movable. There was also ulceration and thickening of the prepuce. The lesions were not sensitive and the inguinal glands were not notably enlarged.

On March 26 smears taken from the lesion showed great numbers of large mononuclear cells. A few of these cells contained typical masses of bacilli which did not show capsules. Smears taken at a later date showed capsulated forms. Large numbers of fusiform bacilli and spirochaetae of a rather coarse type as well as leucocytes containing various kinds of bacteria were seen. Giemsa's stain was used.

The Wassermann test being strongly positive, it was believed that the patient probably had syphilis as well as inguinal granuloma and it was deemed best to try the effect of a thorough course of arsphenamine. This was accordingly given with the result that the surface of the lesion rapidly cleared up and became covered with skin. The patient said on April 11 that the lesion was in better condition than at any previous time. The granulomatous mass, however, remained undiminished in thickness and extent and pus could still be expressed from some of the pockets. No further improvement followed.

About a month having elapsed after completing the course of arsphenamine injections, the patient was readmitted in July for treatment of the granuloma, which was still in the condition above described.

Owing to the fact that the lesion was honeycombed with foci of secondary infection and contained much scar-tissue, an operation was performed at which most, but not all, of the lesion in the groin was removed.

A few days after the operation intravenous injections of tartar emetic were begun. The operation-wound broke down but healed rapidly by granulation and the remnants of the lesion in the groin as well as those on the prepuce entirely disappeared while treatment was in progress. A total of 19½ grains of tartar emetic were administered while the patient was in the hospital and several more injections were given at weekly intervals after his discharge, to prevent recurrence of the disease. Subsequent attempts to trace the patient have failed.

A bit of the lesion excised at operation was examined by Dr. F. B. Mallory, who found in it numerous minute abscesses. Close to one of these, after prolonged search, he discovered a large phagocyte containing bacteria. The peculiar characteristics of the organism associated with inguinal granuloma, however, were much more clearly visible in the smears described above.

CASE 2. Patient of Dr. Crabtree; seen in December, 1920; man, age 26.

Present illness: more than one year ago, while in the British West Indies, the patient noticed on the foreskin a small pimple having a yellowish top. After two or three weeks it disappeared. It reappeared later and has since continued to increase in size. Cauterization was tried in the West Indies and later in Italy. Dark-field examination made in Italy was negative and no secondary symptoms suggesting syphilis were observed. On one occasion when the lesion was particularly inflamed, the glands of the groin became swollen, red, and sensitive, but they did not suppurate.

Physical examination: general physical examination and the Wassermann test were negative. On the right side of the foreskin, well back from the corona and extending in a semicircle half-way around the penis was an indurated, partly encrusted, dark red, sluggish granuloma about $1\frac{1}{4}$ inches in length and $\frac{1}{2}$ an inch in width. The lesion was elevated about $\frac{1}{8}$ of an inch and was freely movable.

A wide excision of the lesion was performed and the wound healed by first intention. There was no sign of recurrence during the ensuing year.

The pathological report by Dr. J. H. Wright was as follows: "The epidermis is irregular and hyperplastic, with a little loss of substance. In the tissue immediately beneath and diminishing toward the bottom of the specimen, is an infiltration with plasma cells and lymphocytes, among which, in places, near the epidermis, are pus cells and larger and smaller endothelial phagocytes containing numerous gram-negative, probably encapsulated, bacilli. No spirochetes could be found. The appearances are very like rhinoscleroma. No evidence of carcinoma."

CASE 3. Patient of Dr. Crabtree; seen in April, 1921; boy, age 2, born in Panama, where he lived until three weeks ago. He was circumcised in the hospital sometime during the first month of life. The suture line healed by first intention, but during the patient's stay of less than two weeks in hospital there appeared on the right side of the meatus a small bleb with a yellowish top. After the patient returned home the bleb became an ulcerated area. Under various treatments the lesion has healed repeatedly only to recur again a few months later. When seen the lesion had not been healed for three months.

Physical examination: appearance healthy. General examination negative. On the right side of the glans and extending into the meatus was an elevated ulcer having a pale surface which was partly covered by a crust. Smears from the meatus and from the ulcer showed cocci and bacilli. The former resembled staphylococci and most of the latter were thought to be B. coli. There were, in addition, a few gram-positive bipolar-staining bacilli. The lesion was cocainized by direct application of the solution on cotton and then the area was cauterized with silver nitrate. This treatment was three times repeated at intervals of a week. The lesion was powdered daily with dermatol. After treatment in this way the lesion healed and did not recur.

REFERENCES.

1 Manson-Bahr: Manson's Tropical Diseases, 7th ed., 1921.

2 Donovan, C.: The Indian Med. Gaz., Vol. 40, p. 414, Nov., 1905.

3 Aragao and Vianna: Mem. Instit. Ozw. Cruz., Vol. 5, Sect. 2, p. 211, 1913.

CASES REPORTED FROM UNITED STATES.

Grindon, J. C.: Jour. Cutan. Dis., Vol. 31, p. 236, 1913.

Goodman, Herman: Arch. Dermat. and Syph., Vol. 1, p. 151, 1920.

Symmers, D., and Frost, Albert D.: Jour. A. M. A., Vol. 74, No. 19, p. 1304, May, 1920.

Campbell, M. F.: Jour. A. M. A., Vol. 76, No. 10, p. 648, March 1921.

Randall, Alex., Small, Jas. C., and Belk, Wm. P.: Jour. of Urol., Vol. 5, No. 6, p. 539, June, 1921.

Reed, W. A., and Wolf, M.: New Orleans Med. and Surg. Jour., Vol. 74, No. 1, July, 1921.

Lynch, Kenneth M.: Jour. A. M. A., Vol. 77, No. 12, p. 925, Sept., 1921.

Randall, Alex., Small, Jas. C., and Belk, Wm. P.: Surg., Gyn. and Obstet., Vol. 34, No. 6, p. 717, June, 1922.

Goodman, Herman: Jour. A. M. A., Vol. 79, No. 10, p. 815, Sept., 1922.

Driver, J. R.: Jour. A. M. A., Vol. 79, No. 11, p. 867, Sept., 1922.

Lynch, Kenneth M.: Southern Med. Jour., Vol. 15, No. 9, p. 688, Sept., 1922.

Claassen, H. L.: The Ohio State Med. Jour., Vol. 18, No. 10, p. 685, Oct., 1922.

Parounagian, M. B., and Goodman, Herman: Arch. of Dermat. and Syph., Vol. 5, p. 597, 1922.

FISH-EGG MUCOCELE OF THE APPENDIX; A CYSTIC TYPE OF CHRONIC CATARRHAL APPENDICITIS, WITH REPORT OF A CASE.

BY WILLIAM REID MORRISON, M.D., F.A.C.S., BOSTON.

ABDOMINAL surgery reveals many unexpected conditions, particularly those in which either the appendix, gall-bladder, or stomach are concerned. These three organs are so closely associated, that disease of one may give rise to signs of trouble in one, or both of the others.

In this instance, a patient had symptoms pointing to a peptic ulcer, or cholecystitis. At operation, no evidence of ulcer of the stomach or duodenum was found. There was a cholecystitis, and in addition, an immense cystic dilatation of the appendix was situated in the right iliac fossa, extending into the true pelvis.

GROSS DESCRIPTION OF THE APPENDIX.

The appendix appeared whiter than normal in color; it was of firm consistence, as if distended with a solid substance. There was a uniform enlargement from base to tip, and its diameter was as large as the width of the small intestine. A few adhesions were present about the appendix. At its base, where it joined the cecum, there was a definite constriction of the appendicular walls. Its mesentery appeared normal.

PATHOLOGICAL REPORT.

The specimen was placed in alcohol, and was examined by Dr. Frank B. Mallory at the Boston City Hospital. He reported as follows: the length and width of the gross specimen measured 5.5 centimeters long, by 2 centimeters in diameter at its base, and 1.5 centimeters in diameter at its tip. A transverse incision was made at the middle of the appendix, and another longitudinal incision was carried through its walls opposite the mesentery. The lumen was distended with a quivering, jelly-like substance, embedded in which were innumerable small rounded nodules, varying from a translucent to a white color, and up to one millimeter in diameter, the whole resembling fish-roe; the substance was not attached to the wall of the appendix, merely distending its lumen. When dropped into alcohol, formaldehyde-alcohol, Zenker, and Klotz, the little bodies immediately shot away from the mass. The appendiceal wall was about one to two millimeters thick, pale white; it had two firmer nodular thickenings, each about four millimeters in diameter, at the mesenteric attachment.

MICROSCOPIC REPORT.

The microscopic examination of the wall of the appendix at its thinnest portion showed almost complete atrophy of the mucosa, with disappearance of the epithelial elements. No inflammatory reaction was evident. The muscle coat was intact, but stretched and thinned. The small balls of secretion were composed of masses of necrotic cells, embedded in mucus. A section through the proximal end of the appendix showed the mucosa present, but the glands were obliterated, probably owing to the stretching which had taken place. The lining epithelium was thickened to form a stratified layer from three to eight cells in thickness. The cells were cylindrical in type, and a few of them were multinucleated (half a dozen to a dozen nuclei in each). The process resembled that sometimes seen in the gall-bladder when stones are present.

This specimen represents an advanced stage of a cystic dilatation of the appendix, in which is found not only mucus, but also little balls of mucoid material, which may later become calcified, as well as the walls of the appendix itself. For descriptive purposes, it may be called a fish-egg mucocele. Two other similar cases have been found by the writer in the literature on this subject. Latham described a dilated appendix, obliterated at its cecal end, which was filled with small, round, white, somewhat transparent bodies, the largest of which was about the size of a dried pea. The wall of the appendix was thickened, the mucous membrane had almost disappeared, and it contained no lymphoid tissue. The bodies did not give the reactions for mucin or for fibrin. Cagnetto also found a cystic dilatation of the appendix, with contents like fish-roe.

NOMENCLATURE.

Various names have been given to different stages of this condition, such as retention cyst, hydrops, colloid or pseudomucinous cyst, myxocele or colloid carcinoma. Each stage of the development of a cystic dilatation of the vermiform appendix has been given a different name, to identify a certain phase in the pathological process. One is merely the transition stage of another. Deaver believes that there is first a mass of mucus, later a collection of fluid material designated as a hydrops.

DIVERTICULA OF THE APPENDIX.

There is a relationship between enlargement of the appendix and diverticula, which has been noted. There may be one or more diverticula of the appendix, either acquired or congenital, which may develop into cystic dilatations. Herb states that congenital or true diverticula are usually single, when derived from the alimentary canal, while acquired or false diverticula are often multiple. It was formerly supposed that acquired diverticula never contained all the intestinal coats, but this is not true. Congenital diverticula usually occur through the persistence of a fetal structure. Other writers think that diverticula are of inflammatory origin, or occur at the weak point where the vessels enter the bowel. Various causes cited are pressure from within, like a gallstone, fecal mass or gas, hyperemia or anemia, lowering muscle resistance, or traction by an accessory pancreas, cherry or pea-shaped, or mesenteric adhesions, or tumors. Fischer states that diverticula may occur on the side of the intestine opposite the mesentery, so its formation as a mucosal hernia along a vascular sheath is unlikely.

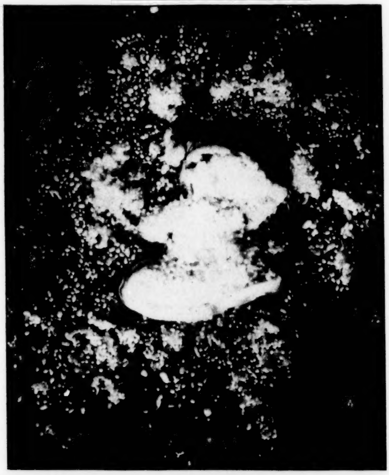
CARCINOMA OF THE APPENDIX.

Elting believes that fetal remains, as well as atrophying organs, appear to be more prone to the development of scirrhous or adeno-carcinoma. He states that primary carcinoma shows a tendency to develop at a comparatively early period of life. It does not show a marked tendency either to extension or to metastasis. In the literature appended, there are no instances of mucoceles being found with scirrhous or adeno-carcinoma at the same time. LeConte reported a case of intussusception of the appendix into the cecum, with carcinoma of the appendix, and metastasis to the iliocolic glands.

PSEUDO-MYXOMA PERITONEI.

If a cyst ruptures, a condition of pseudomyxoma peritonei may result, in every way similar to that resulting from rupture of an ovarian cyst. Bailey states that the danger of malignancy is greater in the rupture of an ovarian cyst than that resulting from the breaking of an appendicular cyst. Trotter asserts that there are two types of foreign-body peritonitis, the first being some small irritating substance such as food, or hooks from echinococcus embryos, resulting in great reactive changes in the peritoneum. The second type is characterized by very conspicuous irritating material, as from a ruptured appendicular or ovarian cyst, with very slight reactive process in the peritoneum. Phemister writes that after a rupture of a cyst, masses of mucin may be encapsulated, and converted into cysts by growth from the peritoneum, of fibrous covering, or a more extensive irritation, pseudomyxoma peritonei, may result. He states that the mucus is chiefly pseudomucin, and that mucoceles may either become infected or perforate. Nicholls described an affection of the serous membranes, multiple progressive hyaloserositis, characterized by the formation of a dense hyaline investment, particularly of the liver and spleen, which may have some relation to pseudomyxoma peritonei resulting from rupture of a mucocele cyst sometime previously. Infection is believed to be the usual cause, because the pleural and pericardial cavities are affected as well.

SIZE AND SHAPE OF CYSTS OF THE APPENDIX.



These cysts may vary greatly in size and shape, some attaining the size of a man's head. They may be single, or more rarely multiple. The shape depends on whether the whole appendix is involved, or only part of it; the distal or proximal end, the middle, or, as in this case, the entire appendix may become dilated. Thus the cyst may be pedunculated or sessile. It may be ovoid, cylindrical, round, fusiform, pear-shaped, biscuit-shaped, or irregular in outline. Cysts have been described as banana, or sausage, or stomach-shaped; the size of a walnut, or pigeon's or hen's egg; like a fist, orange, apple, plum or a baby's head. Cystic dilatations shaped like a cigar or fountain pen have been noted.

CONTENTS.

The character of the contained fluid may be clear and watery, slightly turbid, blood-tinged, milky, mucoid, like vitreous humor, muco-purulent, tenacious, gelatinous, putty-like, or similar to curdled milk, pseudo-myxomatous, or frothy and gaseous. Extravasated blood has been found also.

MUSCULATURE, MUCOSA, GLANDS, AND SEROSA.

The muscular coat may be unchanged, thinned or thickened from inflammatory infiltration, or from true hypertrophy. The mucosa may be ulcerated, or lacking in places, replaced by connective tissue. Secondary cysts may develop in the remains of partly occluded glands. The lymph follicles are either very much flattened, or entirely absent, depending on the size of the cyst, and length of time the process has been progressing, according to Deaver. The serosa is unchanged usually.

OCCURRENCE.

Cystic dilatation of the appendix is a rare condition, for only twenty-eight cases have been found in a total of 13,158 autopsy records of Ribbert, Bryant, Steiner, Boody, Kelly and Hurdon, Stengel, Heineck and Castle. At the Boston City Hospital in a total of 3770 autopsies there were sixteen cases. The total number of cases in the literature are from 85 to 256, according to Crouse. Only two other cases of fish-egg mucocele have been found in the literature by the writer, thus this type is exceedingly uncommon.

CAUSE.

The cause of an acquired mucocele of the vermiform appendix is probably a low-grade inflammatory process, such as is seen in a chronic catarrhal appendicitis, although a true cyst of the appendix might be congenital. Immediate blocking of the lumen of the appendix from an acute inflammation, arising within or without the viscus, or carried to it by the blood vessels or lymphatics, would result in rupture of its walls, as is seen so frequently in acute appendicitis. Therefore, to obtain an acquired mucocele, there should be a low-grade infection, and a process slowly obliterating the lumen of the appendix. This results in the mucous membrane excreting mucus at a faster rate than it is carried away by peristalsis, into the rest of the appendix or cecum, or reabsorbed. The constriction which develops a cyst may be intermittent in character, or eventually permanent. The fish-egg appearance of this specimen represents inspissated balls of mucoid material surrounding minute masses of necrotic cells. This may later become calcified, in addition to calcification of the walls of the appendix, in the event that the cyst does not burst, as it sometimes does.

Certain writers believe that cystic dilatation may be caused by a normal obliterative process, or by some specific infection, as syphilis, tuberculosis, or typhoid. Malignancy, angulation, torsion, compression by adhesions or trauma to the appendix are also cited. Fecal concretions, or foreign bodies ingested, such as pins, shot, pieces of lead, bones, hairs, bristles, seeds, capsules, gallstones, or enterozoa might lead to cyst formation. Immobilized retroperitoneal position of the appendix, when distention of the cecum will close off the valve of Gerlach, favors cyst formation, also short mesentery of the appendix, with resulting kinking.

Intussusception of the appendix into the cecum would be a mechanical cause. Any interference with the blood or lymphatic supply of the appendix could be a factor, causing hyperemia or anemia, with weakening of the expulsive powers of the muscular walls of the appendix. Curtis reported a case in which yeast cells were observed in a pseudomucinous cyst of the appendix. The gall-bladder or a diverticulum of the intestine may develop mucoceles, subject to chronic inflammation, as well as the vermiform appendix.

SYMPTOMS.

There may be no subjective symptoms, or merely those of a chronic appendicitis, unless the cyst ruptures, therefore the diagnosis is made usually at operation or at autopsy. Sometimes a tumor is felt through the abdominal wall, or x-rays may reveal calcification.

DIFFERENTIAL DIAGNOSIS.

Conditions which may simulate a cystic appendix are a tense distended cecum, diverticulitis of the cecum, paranephritic abscess, ureteral calculus, floating or tuberculous kidney, cyst of the kidney, hydronephrosis, uterine fibroid, ovarian cyst, hydro- or pyo-salpinx, traumatic hematoma, retroperitoneal cyst, cyst of the mesentery, intussusception or malignancy of the intestine.

PROGNOSIS.

The prognosis is good, if there is no rupture of the cyst. The treatment is, of course, clean surgical removal, particular care being taken to excise the appendix intact. Carcinoma of the appendix may result from chronic irritation of its lumen; empyema of the appendix follows infection of cyst contents, therefore appendectomy is most desirable for a good end-result.

CASE HISTORY.

My patient was a man fifty-one years of age, a lumber-yard worker. His family history was negative. He had been treated for twenty years, on and off, for complaints diagnosed by various doctors as stomach and liver trouble, indigestion and dyspepsia. In his youth he had scarlet fever and gonorrhoea, but not syphilis. He suffered from dull epigastric pain, and much belching of gas, in spells; eating food relieved the distress in his stomach. His appetite was good, but he said that he didn't dare to eat anything. His habits were good; he drank no coffee, and he had not been addicted to alcohol. There was no history of vomiting, and his bowels were regular; the movements had been clay-colored, but never tarry. He slept poorly, and had nocturia once or twice. His weight had decreased slowly in the last few years.

General physical examination was essentially negative, except for some tenderness in the epigastric region. Rectal examination revealed an enlarged prostate gland. His reflexes were normal, his urine and blood Wassermann were negative. The systolic blood pressure was 135 mm. of mercury. A series of fluoroscopic and x-ray examinations with a barium meal showed some ptosis of the stomach and transverse colon. The stomach and duodenum were otherwise negative. The appendix was not visualized, but the lower cecum was spastic, although not obstructed. Dr. Paul Butler interpreted these findings to be either a tubercular peritonitis, a localized inflammatory process of the cecum itself, a colitis, or a new growth.

OPERATION.

At the Scobey Private Hospital, a right rectus incision was made half way between the gall-bladder and appendix regions, under gas-ether anesthesia. The cystic appendix was removed in the usual way, the mesentery of the appendix being transfixed and ligated with Number 2 iodized catgut. The base of the appendix was crushed, and tied off with a double ligature of the same material. The stump was treated with carbolic acid, and then alcohol, and inverted with a purse-string of linen. The gall-bladder was distended, somewhat thickened, and could not be emptied. There were also a few adhesions around the base of the gall-bladder. The stomach, duodenum, liver, pancreas, and kidneys were palpated, but found to be normal, as were also the colon and sigmoid. The gall-bladder was drained by means of rubber-tubing, held in the viscus by two purse-string catgut sutures, and a cigarette wick was placed beside the base of the gall-bladder. A stab-wound under the right costal margin provided proper drainage for both tubing and gauze, which were sutured separately to the skin. The abdominal wound was closed in layers, interrupted mattress sutures of iodized Number 2 catgut approximated the peritoneum and fascia, while double figure of eight silkworm gut held the fascia and skin, obliterating all dead space. A skin suture of "button-hole" horsehair united the edges of the wound.

Convalescence was uneventful, the wick was removed on the sixth day, and the tubing on the tenth day, as well as all stitches. The patient was discharged on the fourteenth day to his home. An abdominal belt was fitted to prevent any visceroptosis. Leg exercises, to strengthen the abdominal wall, were practised after leavings the hospital. He has returned to his previous occupation of handling heavy lumber, and when last seen eight months after operation, the patient was enjoying excellent health.

REVIEW OF THE LITERATURE.

Virchow described a cyst the size of a fist in 1863, considering it a colloid degeneration. Rokitansky in 1867 reported four cases which he diagnosed as colloid carcinoma. In 1875 Coats noted a cyst five inches in the longest diameter. Wenzel-Gruber in the same year cited another cyst of the appendix. Fere in 1877 found a cyst at autopsy, and called it a mucocele. Wolfler wrote concerning incarceration of a cyst in the inguinal canal. In 1880 Sabine at Bellevue Hospital opened a tumor, probably a cyst of the appendix or ovary. Weir observed a similar tumor at operation, the size of an egg. Draper, in 1884, made note of a cyst at autopsy the size of a large plum. In 1887, Vimont recorded a mucocele found at necropsy. Treves and Swallow in 1889, operated for a cyst the size of an adult thumb; it felt like an elongated pebble. Guttmann in 1891, also Baillet, discovered a hydrops of the appendix. Shoemaker in 1892 noticed a gelatinous cyst and pseudomyxoma peritonei. In 1893 Ribbert mentioned six cases, one the size of a small apple. McArthur made a memorandum of a cyst resembling a slender cigar or fountain penholder.

Stimson, in 1896, reported a cancer of the vermiform appendix. Van Hook commented on a case of strangulated hernia of a cystic appendix, ruptured on reduction. In the inguinal canal was translucent amber-colored mucus like calves-foot jelly. He stated that Zdekauer found a cyst of the appendix the size of an acorn, filled with pus, and situated in a right inguinal hernia. Glasmacher's case, similarly situated, was the size of a pigeon's egg. Van Hook narrated that Steiner observed a cyst, biscuit-like, with two distal ends communicating by means of a narrower part. In 1896 Berry produced cysts experimentally in rabbits. In 1900 Wood reported a mass as large as a kidney, which proved to be a cystic appendix, with a bunch of cysts on the distal extremity of the appendix, as large as a hickory nut. In 1903 Lilienthal observed the central portion of an appendix as large as a pigeon's egg, containing colloid material. In 1904 Gildersleeve noted foam and frothy contents of a cyst. Landenberger felt a mass the size of a goose egg in the right iliac fossa, following trauma; it was a cystic dilation in the distal four-fifths of the appendix, the proximal end being normal. In 1912 Crowell wrote an excellent article based on a mucocele and diverticulum found postmortem. In 1912 Noble reported a large cyst, and Wilson stated that he ruptured a cyst during a bimanual examination. Eden found cystic disease of both appendix and ovaries which he thought were independent conditions. Wilson reported finding a large metastatic growth in the middle lobe of the right lung, seven and a half years after operation for double ovariotomy. There was a cystic growth in the right iliac fossa, from the ilium, the size of a cocoanut, containing mucus. Microscopical sections of the lung metastasis resembled those of a proliferating ovarian cyst. In 1914 Matas reported a retroperitoneal, multilocular, retrocecal cyst, as a cyst of the appendix; it was 47 cm. in circumference, its weight was 52 ounces. He thought that it was an outgrowth of some embryologic relic connected with the mesentery, possibly a development of an original lymphangioma cavernosum of the mesentery. In 1915 Phemister tried to produce cysts experimentally in dogs, but failed. In 1915 Ogilvie found a cyst with calcification of its walls, shown by x-ray as a calcareous mass of rather irregular outline, to the right of the fourth and fifth lumbar vertebrae. The base of the appendix contained the mucoid substance, while the distal portion had pus. In 1915 and 1916 Castle, Bailey, and Dodge wrote excellent articles, the latter making a study of 142 cases.

Poor descriptive titles, such as "An Interesting, or Unusual Case," interfere with a complete review of the literature.

CONCLUSIONS.

1. A cystic dilatation of the vermiform appendix filled with mucus, called a mucocele is not commonly found; a fish-egg type is very rare. It is an advanced stage of a retention cyst in which is found not only mucus, but also little balls of mucoid material, which may later become calcified, as well as the walls of the appendix itself. The gall-bladder or a diverticulum of the intestine may develop into mucoceles.

2. Its size, shape and contents vary a good deal.

3. There may be single or multiple cysts.

4. The cyst may burst, causing pseudomyxoma peritonei, or develop into an empyema and then rupture.

5. True scirrhous, colloid, or adeno-carcinoma of the appendix may result from chronic irritation; a mucocele should not be designated as a colloid carcinoma because of its gross appearance.

6. The cause of an acquired cystic dilatation of the appendix is usually a low-grade inflam-

mation, although a true cyst might be congenital.

7. Differential diagnosis: Conditions which may simulate a cystic appendix are a tense, dilated cecum, diverticulitis or malignancy of the cecum, ureteral calculus, ptosis or cyst of the kidney, uterine fibroid, ovarian cyst, hydro- or pyosalpinx, traumatic hematoma, retroperitoneal cyst, a cyst of the mesentery or intussusception.

8. Diverticula of the appendix may develop from a cystic dilatation, and each diverticulum may turn into a cyst.

9. The cystic appendix may become calcified, and its contents may also.

10. There may be no subjective symptoms, or there may be symptoms of a chronic appendicitis, cholecystitis or peptic ulcer. Objectively, a cyst may be palpated through the abdominal wall externally, or bimanually. X-rays reveal calcification, which may simulate a ureteral calculus.

11. The prognosis is good, with clean surgical removal of the appendix.

12. The treatment is excision of the cystic appendix.

BIBLIOGRAPHY.

Aschoff, L.: Path. Anat., Jena, 1913, ii, 795.
Bailey, P. W.: Surg., Gyn. and Obstet., 1916, xxiii, 219.
Baillet: Bull. de la Soc. Anat., Paris, 1891, v, 67.
Baldwin, L. G.: Brooklyn Med. Jour., 1904, xviii, 252.
Berry, Richard J. A.: Jour. Path. and Bact., Edinburgh and London, 1896, iii, 160.
Bierhoff, Carl: Deutsch. Arch. f. klin. Med., Leipsic, 1890, xxvii, 248.
Bierring, Walter L.: Jour. A. M. A., 1906, xlvi, 498.
Biggs, George P.: Med. Rec., N. Y., 1893, xliii, 536.
Boody, George: Am. Med., Philadelphia, 1902, iv, 262.
Cagnetto, G.: Virchow's Arch., Berlin, 1909, 198, 193.
Castle, Otto L.: Ann. Surg., Philadelphia, 1915, lxi, 582.
Coats, Joseph: Glasgow Med. Jour., 1875, vii, 126.
Colley, F.: Die Chronische Entzunding des Blindtarmenhanges, Berlin, 1912.
Corning, Erastus: Albany Med. Ann., 1905, xxvi, 816.
Crawford, J. Lynn: Iowa Med. Jour., 1909, xvi, 129.
Crouse, Hugh: Surg., Gyn. and Obstet., 1910, xi, 457.
Crowell, B. C.: Philippine Jour. Science, Manila, Sect. B, 1912, vii, 29.
Curtis, F.: Ann. de l'Inst. Pasteur, 1896, x, 449.
Deaver, John B.: Treatise on Appendicitis, Philadelphia, 1913.
Dodge, George E.: Ann. of Surg., 1916, lxiii, 334.
Draper, F. W.: Boston Med. and Surg. Jour., 1884, cx, 131.
Edel, Max: Virchow's Arch., 1894, cxxxviii, 347.
Eden, Thomas Watts: Lancet, 1912, ii, 1498.
Elting, Arthur W.: Ann. of Surg., 1903, xxxvii, 549.
Fenger, Christian: Jour. A. M. A., 1888, xi, 606.
Fenwick, Samuel: Clinical Lectures, London, 1889.
Fere: Le Progrès Médical, Paris, 1877, v, 73.
Fischer, Marten H.: Jour. of Exper. Med., New York, 1901, v, 333.
Fraenkel, Von Eng.: Münch. med. Woch., 1901, xxiv, 965.
Garrow, A. E., and Keenan, C. B.: Ann. of Surg., 1908, xlviii, 560.
Gerster, A. P.: New York Med. Jour., 1892, lvi, 216.
Gildersleeve, C. P.: Brooklyn Med. Jour., 1904, xviii, 318.
Ginsburg, Nathaniel: Ann. of Surg., 1916, lxiv, 585.
Glasmacher: Virchow's Jahresbericht., Berlin, 1886, ii, 434.
Graves, S.: Ann. of Surg., 1916. lxiv, 587.
Guttmann, Paul: Deut. med. Woch., 1891, Leipsic and Berlin, Nr. 17, 260.
Hämmesfahr, C.: Deut. med. Woch., 1913, xxxix, 1501.
Harte, Richard H.: Ann. of Surg., 1908, xlvii, 968.
Hartman, Henry, and Kindley, G. C.: Jour. A. M.. A., 1914, lxii, 1755.
Hedinger, Ernst: Virchow's Arch., 1904, clxxviii, 25.
Heineck, Annie P.: Interstate Med. Jour., St. Louis, 1906, xiii, 501.
Hektoen, L.: Am. Jour. of Obstet., New York, 1893, xxviii, 272.
Herb, Isabella C.: Tr. Chicago Path. Soc., 1907, vii, 94.
Hueter, C.: Ziegler's Beiträge, Tübingen, 1907, 41, 517.
Jones, E. O.: Surg., Gyn. and Obstet., 1911, xii, 131.
Jones, Daniel Fiske, and Simmons, Channing C.: Boston Med. and Surg. Jour., 1904, cli, 566.
Kauffmann, Ed.: Lehrbuch der Speciellen Path. Anat., Berlin, 1901.
Kelly, A. O. J.: Am. Jour. Med. Sci., 1908, cxxxv, 851.
Kelly, A. O. J.: Proc. Path. Soc. Philadelphia, 1900, n.s. iii, 109.
Kelly, J. A.: Ann. of Surg., 1909, xlix, 524.
Kelly and Hurdon: The Vermiform Appendix and Its Diseases, Philadelphia and London, 1905, 250.
Kelynack, T. M.: The Path. of the Verm. Appendix, London, 1893, 59.
Kennedy, J. W.: New York Med. Jour., xcvii, No. 12, 602.
Lafforgue, Evariste: Gazette des Hopitaux, 1904, lxxvii, 33.
Landenberger, J. C.: Med. Rec, New York, 1904, lxvi, 856.
Latham, Arthur: Trans. Path. Soc. of London. 1897, xlviii, 86.
LeConte, Robert G.: Ann. of Surg., 1908, xlvii, 1000.
Lejars et Menetrier, Revue de Chir., Paris, 1904, xxx, 469.
Lewis, E. G.: Surg., Gyn. and Obstet., 1914, xix, 757.
Lilienthal, Howard: New York Med. Jour., 1903, lxxvii, 231.
Lothrop, Howard A.: Boston Med. and Surg. Jour., 1908, clviii, 450.
MacCarty, William C., and McGrath, Bernard F.: Ann. of Surg., 1914, lix, 675.
MacCarty, William C., and McGrath, Bernard F.: Surg., Gyn. and Obstet., 1911, xii, 211.
MacLean: Münch. med. Woch., 1908, lv, 1746.
Mason, Nathaniel R., and Rhea, Lawrence J.: Boston Med. and Surg. Jour., 1907, clvi, 44.
Matas, Rudolph: Jour. A. M. A., 1914, lxii, 328.
Mayo, William J., Wilson, Louis B., and Giffin, H. Z.: Surg., Gyn. and Obstet., 1907, v, 8.
McArthur, L. L.: Am. Jour. of Obstet., New York, 1893, xxviii, 274.
McBurney, Charles: Med. Rec., 1901, lx, 478.
McConnell, Guthrie: Internat. Clinics, Philadelphia, 1907, iv, Series 17, 153.
McWilliams, Clarence A.: Amer. Jour. Med. Sci., 1908, cxxxv, 822.
Merkel, H.: Ergeb. der Allgemein. Path. u. Path. Anat., Wiesbaden, 1903, ix, Abt. 2, 327.
Meyer, Leo B.: Surg., Gyn. and Obstet., 1915, xxi, 354.
Monks, George H.: Ann. of Surg., 1908, xlviii, 563.
Montgomery, E. E.: Jour. A. M. A., 1897, xxix, 174.
Moore, Reginald H.: Brit. Med. Jour., London, 1910, i, 1109.
Moschowitz, Alexis V.: Ann. of Surg., 1903, xxxvii, 891.
Neumann, A.: Berl. klin. Woch., 1909, xlvi, No. 1, 15.
Nicholls, A. G.: Studies from Royal Victoria Hospital, Montreal, 1902, Vol. i, No. 3.
Noble, Robert A.: Jour. A. M. A., 1912, lviii, 691.
Norris, C. C.: Univ. of Penn. Med. Bull., 1904, xvi, 334.
Oberndorfer: Verh. der Deut. Path. Ges., Jena, 1906, x, 235.
Ogilvie, H. H.: Jour. A. M. A., 1915, lxiv, 657.
Phemister, D. B.: Jour. A. M. A., 1915, lxiv, 1834.
Phemister, D. B.: Surg., Gyn. and Obstet., 1914, xix, 121.
Primrose, Alex.: Ann. of Surg., 1920, lxxii, 690.
Rathe, B.: Monatschr. f. Geburtsch. u. Gyn., Berlin, 1913, xxxvii, 322.
Reel, Philip J.: Ann. of Surg., 1917, lxv, 743.
Ribbert: Virchow's Arch., Berlin, 1893, cxxxii, 66.
Ries, Emil: Surg., Gyn. and Obstet., 1914, xviii, 262.
Roberg, D. N.: Tr. Chic. Path. Soc., 1907, vii, 180.
cxxxi, 951.
Rokitansky, C.: Med. Jahrb., Wien, 1867, xiii, 179.
Rolleston, H. D., and Jones, Lawrence: Am. Jour. Med. Sci., 1906,
Sabine, T. T.: Med. Rec., 1880, xvii, 44.
Shoemaker, David: Occ. Med. Times, Sacramento, Calif., 1892, vi, 387.
Stengel, Alfred: Jour. A. M. A., 1906, xlvi, 495.
Stimson, L. A.: Ann. of Surg., 1896, xxiii, 186.
Treves, Frederick, and Swallow, James D.: Lancet, 1889, i, 267.
Trotter, Wilfred: Brit. Med. Jour., 1910, i, 687.
Van Hook, Weller: Medicine, Detroit, 1896, ii, 177.
Vassmer, W.: Deutsch. Ztsch. f. Chir., Berlin, 1908, xci, 445.
Vimont: Bull. de la Soc. Anat., Paris, 1887, lxii, 608.
Virchow, Rudolph: Die Krankhaften Geschwülste, Berlin, 1863, i, 250.
Warren, J. C.: Boston Med. and Surg. Jour., 1898, cxxxviii, 177.
Watkins: Zentr. f. Gyn., Leipsic, 1910, xxxiv, 197.
Weinhold: Monat. f. Geburtsch. u. Gyn., 1909, xxix, 515.
Weir, Robert F.: Med. Rec., 1880, xvii, 44.
Wenzel-Gruber: Virchow's Arch., 1875, lxiii, 97.
Werth: Arch. fr. Gyn., 1884, 24, 100.
White, E. Hamilton: Am. Jour. Med. Sci., 1908, cxxxv, 702.
Wilson, Thomas: Lancet, 1912, ii, 1496.
Wilson, Thomas: Trans. Royal Soc. of Med., 1912-1913, vi, 9.
Wohl, Michael G.: Ann. of Surg., 1916, lxiv, 311.
Wölfler, A.: Arch. f. klin Chir., 1877, xxi, 432.
Wood, James C.: Amer. Jour. Obstet., 1900, xli, 15.
Wright, J. H.: Boston Med. and Surg. Jour., 1898, cxxxviii, 150.

EXCISING THE APPENDIX VERMIFORMIS. TECHNIQUE.

BY WELLER VAN HOOK, M.D., CHICAGO.

I.

The small operation of removing the appendix vermiformis is done by many, both great and small. Fortune usually smiles. But a glance at H. A. Kelly and Hurdon's big book on *The Appendix*, or Sprengel or Sonnenburg, will convince any one that full knowledge of the subject demands prolonged study. And the critical specialist in surgery sees much in the operation which escapes the attention of the so-called casual operator.

This article is written because it is felt that errors in method are glaringly present in the work of a great many operators. And these errors could easily be eliminated if the principles involved were better understood. If the subject were accurately studied a few deaths, perhaps many, would be avoided each year.

Haemostasis must be correct, accurate and wisely applied. The arterial arches of the mesenteriolum must not be unduly compromised, according to Kelly, who insists that the vessels running to the caecum must not be ligated, but only those that can be seen to supply the appendix itself. The mesenteriolum may well be left long to enable the operator to suture it over the caecal wall where the appendix was ablated. Ernst Graser[1] says, "If one by oversight ligates the terminal artery supplying the caecum, a three-mark-sized portion of the caecum may undergo gangrene (Roux)."

The blood-vessels in the appendix itself must be so closed that they may not later bleed into the bowel or between the point of section and the sutures placed in the peritoneum. Hessert has emphasized this point. Nothing short of a constricting ligature, which is otherwise objectionable, or the form of suture-ligature of the appendix which I recommend can afford the requisite control. The cautery does not seem accurate. Small arteries in the wall of the appendix may undergo sloughing later, with the gangrenous, cauterized stump.

The peritoneum must not be defiled by the contents of the appendix escaping upon it. Many types of procedure secure this requirement; but there are other considerations besides the simple necessity of damming away the appendical contents that limit our choice of method. For example, while transection of the appendix between two ligatures is sufficiently cleanly, I shall presently point out that it is an undesirable method on account of the necessity which it imposes of burying a ligature in the closing over of the stump. We shall also discuss what is considered a better method.

A very important detail is the management of the stump from the point of view of its bacterial relationships. It is necessarily defiled within with millions of bacteria. In acute appendicitis these bacteria may have lodgement and pathogenic activity in the walls of the tube itself. Yet we are usually able to get above infected fields in making our amputation.

Only the incinerating application of the actual cautery can really sterilize the stump. But we must remember that sterilization actually occurs only at the points where the cautery sears the tissues fully; where, in other words, destruction has occurred. Downes' electro-cautery seems, from its pictured appearance, to be ideal for this purpose. By it the temperature of the tissues can be raised to the degree needed to destroy all bacterial life at the point of application. Other methods and apparatus might be devised to effect the same result. But in the use of this method the cautery should be so applied that it will amputate as it heats the stump. There is a practical objection to this method—it *kills tissues* and leaves cells at the junction of the dead with the living structures which are damaged by the heat but not killed and which, therefore, are not fully resistant to parasitic invasion. Hence this tissue, of lowered vitality, may form a nidus of infection from which processes of pathological activity may spread. It is probable that even the originator of this beautiful device does not now use it.

In many hospitals, operators may be seen carefully touching the stump, after removal of the appendix, with some disinfectant. Sometimes they speak of *sterilizing* the stump by this procedure, forgetting that the bactericide cannot reach and, therefore, cannot kill all the bacteria present. Even Kelly nods at this point and speaks of sterilizing when he means disinfecting. The process is merely a *quasi* disinfection, very imperfect and incomplete, and, furthermore, inherently objectionable. It is harmful because it introduces into the very important though small intestinal wound a quantity of violently destructive chemical matter, iodine or carbolic acid, that kills or weakens cells that are not removed surgically, and can neither get away by themselves nor be wholly active where they are. These cells, then, can easily become the seat of active bacterial proliferation that may lead to violent suppurative, erysipelatous, diphtheritic or gangrenous inflammation.

On the other hand, if the stump is left in a normal condition without heat or chemical applications the tissues can begin at once the necessary resisting and reparative processes without the delay necessitated by the preliminary removal of dead or half-dead tissues and with the aid of rapidly flowing tissue-fluids (blood and lymph) that are always poured out after the simple use of the knife. The fibrin-forming elements in these fluids will usually coagulate quickly, seal spaces between sutured bowel-edges and close dead cavities until tissue regeneration fills them up permanently. One advises, therefore, complete omission of disinfection. By mechanical means we can prevent the introduction of infectious matter where it may do harm. Leave the tissues uninjured, to cope with the enemies of wound healing. No one thinks of disinfecting bowel edges in enterotomies! We shall discuss presently a practical method for meeting this difficulty.

Bad technique, the result of imperfect theorizing, is proposed by many well-known surgeons and practised by multitudes of their trusting but unthinking followers.

For example, the ligation of the appendix with ablation beyond the thread and then the burying of the ligated stump is seriously erroneous. As pointed out years ago by Edebohls,[2] this procedure leaves the stump bottled up, as Kelly aptly expresses it, in the caecal wall! It probably easily becomes the seat of inflammatory reaction, resulting in abscess-formation. It is fortunate that such abscesses would most probably be discharged into the intestine rather than into the peritoneal cavity. Yet their existence does much harm even if death does not result.

That the method of ligating the appendix, amputating distally to the ligature and then burying the ligated stump is highly dangerous is proved by the report by Hermann,[3] from Rydygier's clinic, of a fatal case. "In this way," says Hermann, "we lost, in our clinic, a patient five days after an operation conducted in this manner for chronic appendicitis."

Hermann recommends the ablation of the appendix without preliminary ligature. Then the stump is invaginated and two rows of sutures are used to bury it.

Even the magnificent surgical treatise of Bier, Braun and Kümmell contains excellent drawings, in Graser's fine article on appendicitis, commending this faulty method.

The ablation of the appendix and the invagination of the stump into the caecal cavity without suture is open to the criticism that hemorrhage may occur. And even the use of the actual cautery leaves the stump in a highly vulnerable state at the point where sloughing away of the sphacelus must inevitably occur. One thinks at once of the common secondary hemorrhage due to the sloughing of the coats of small arteries.

Edebohls' method of invagination of the appendix is probably forgotten by this time, as is doubtless Deaver's amputation flush with the caecal wall and closing with mattress-Lembert sutures. Fowler's peritoneal cuff-method sleeps, one imagines, with these appendical fathers.

II.

A method that is very simple, rapid, and effective, meeting all the demands involved in the foregoing critical considerations, will be described. It is based on Halsted's use of three compression artery forceps and has been used successfully by me since an account of Halsted's suggestion was published.

The appendix is held up by the right hand of an assistant, who uses a laparotomy pad with which to grasp it. With an artery forceps a catgut ligature is passed through the mesenteriolum close to the appendix. This ligature is snugly tied down into a groove made in the mesenteriolum by an artery forceps so applied that most of the mesenteriolum will be left after the appendix is separated from it.

The appendix is now separated from the mesenteriolum by a knife-cut in a line almost parallel with the former. Around the appendix a purse-string Lembert suture is passed through the caecal peritoneum enclosing a circular area about two centimeters in diameter. But this suture is temporarily left untied. The appendix is next grasped at its junction with the caecum with a Kocher's six-inch forceps and then by two other similar clamps placed, one on each side of the first, as close as possible to it. When all three have been firmly set, the middle one is removed, its handles having been set in a direction opposite to that of the other two. The effect of this procedure is, first, to squeeze almost all the fluids out of the appendix at the point where it is to be ablated, and second, to crush the organ so that it is very easily manipulated without the undue dissemination of its fluids about the field of operation. A large laparotomy pad is carefully laid about the appendix and close to the forceps.

It is at this moment that the appendix is separated from its base by a smooth knife-cut. This leaves, after removal of the appendix the base of which is still in the grasp of an artery forceps, a simple mass of flattened tissue projecting sufficiently to make easy the placing of a line of sutures. The sutures are placed with an ordinary sewing needle, whipping the stump over and over. The needle is passed through from two to four times, depending on the width of the stump. The suture is tied after it has been passed through as often as necessary. This method of whipping the sutures over and over closes the stump in such a way that, when the purse-string is tied, the occluding suture rolls into the interior of the bowel and can fall off into the intestine when it becomes loosened.

Next, when the suture-ligature has been firmly tied the long ends are put into the right hand of the assistant with the injunction that he shall do nothing, for the moment, except hold the threads straight up in the air. They are "infected," for the suture has been passed repeatedly through the base of the appendix. Now the operator thoroughly washes his gloved hands in a basin of bichloride of mercury solution, previously set near, and then in sterile water, or changes his gloves. Returning to the operative work the surgeon takes up the ends of the clean purse-string suture, makes the first loop of a knot in it and draws it up a little. Only at this moment is the thread held by the assistant, cut off. The scissors used for the thread-cutting are set aside as infected and the assistant washes his gloved hands in the same manner as did the operator, or changes gloves.

The appendix stump is pressed into the caecum within the loop of the Lembert purse-string suture and the knot is closely drawn. A second knot makes all secure.

Finally the stump of the mesenteriolum is carefully sutured to the end of the caecum in such a way that two purposes are subserved.

One is that the suture burying the appendix stump is covered; the other that the stump of the mesenteriolum is so treated that its cut edge, devoid of peritoneum, is prevented from doing mischief by forming adhesions. To effect these purposes the edges of the fatty little stump of the mesenteriolum are sutured by one or several interrupted fine stitches to the caecal wall, so that no unperitonealized surfaces are left free. The work can be made more perfect by placing these stitches in such a manner that, when tied, their knots are covered.

Now one of the most important points in this mode of operating lies in this, that the first suture layer rolls into the interior of the bowel when the stump is pushed in, as already mentioned. When it is loosened there it falls off into the faecal stream. It cannot be pocketed as might be the case if it were outside the bowel.

Hemorrhage cannot occur, because the stump has been tied by this suture ligature.

The writer has used this method in many hundreds of cases without finding occasion to criticise it.

31 North State Street, Chicago.

REFERENCES.

1 Graser: Bier, Braun and Kuemmell, "Operative Surgery."
2 Edebohls: Kelly-Hurdon, "The Vermiform Appendix," etc.
3 Hermann: Centralblatt f. Chir., 1901, p. 1028.

THE FULL-TIME SCHOOL PHYSICIAN.

BY HUGH GRANT ROWELL, M.D., NEW BEDFORD, MASS.,

Director of Health and Hygiene New Bedford School Department.

SCHOOL health work is no longer in its infancy. One must rather consider it in the organization stage. The larger cities have for some years had such departments, usually as a branch of the Department of Health, and consisting of a full-time director with or without certain specialists giving full or part time, and with part-time physicians as inspectors. Up to the last few years the smaller cities have done their work with part time physicians under the direction of the Board of Health, with duties which consisted of a definite yearly or semester inspection, plus examination of other children as requested. That such work was not sufficiently comprehensive is becoming evident. For this reason the progressive smaller cities are beginning to adopt the newer system, somewhat modelled on the methods of the larger cities but with personnel to suit the particular local situation.

The question frequently arises regarding having school health work under the Board of Health or directly under the school board, the chief of the Health Department ranking as an assistant superintendent with extraordinary freedom from interference except in matters of general school policy, which of course is outlined by the superintendent. Those in favor of Board of Health control feel that the coördination with other health measures in the city is of prime necessity and that in time of epidemics the extraordinary powers possessed by such boards under these circumstances would be of great advantage. Those who see danger in the recent active interest in the smaller cities in the political side of school affairs feel that a medical department should never be in politics and that the danger of such trouble is less under Boards of Health. On the other hand, it is very evident that the interest of school health work is primarily for the school department and that coördination with such officials here is of more importance since any success of the system is bound to depend largely on the coöperation of the superintendent, teachers and school nurses. School nurses, strangely enough, are practically always under the direction of school boards. By this system official communications between two definite city organizations are avoided in most cases, with the consequent saving of time and red tape. Being a school official the director of school health can easily have access to any records of the department and his office, as for example in my own case, being in the same building as the other school executives, a problem has to be of considerable scope not to be settled in a few minutes and action is then started. Regarding extraordinary powers, it should be remembered that a school superintendent also possesses emergency powers since his board can only take action when assembled as such and a sensible school health director can secure any reasonable assistance very easily from a superintendent who is interested and coöperates. If one is not fortunate to be under such a person, one should seek other fields. Regarding the relations with the school board itself it can be said that there is scarcely more than one physician, if any, on the boards, especially in these days of professional school supervision with consequent small boards. This means your dealings will be chiefly with this physician, and if there is none, then your knowledge of these highly technical matters must necessarily be given full value. Most school boards feel that, regardless of how they may care to dictate in other matters, technical health problems need the services of the expert and will act accordingly. Regarding political disturbances one must remember that health directors are frequently under the civil service and also that health work is practically a separate department of itself, and after all very little under the superintendent's direction, so that one need not fear politics particularly, provided one's department is well and economically managed and results appear to be forthcoming. To my mind the direct responsibility to the school board offers better opportunity for success and compels real efficiency because of the ability of the board to control the actions of its own employees.

Regarding the full-time director, there is every reason for his presence. For many reasons he must not engage in private practice, one of the chief being the element of competition with other practicing physicians who, while they would coöperate with one who could not possible interfere with their practice, would resent the prestige given a person who might use it to secure their patients. for his own. Again the full-time physician is directly responsible to his superintendent and his board. He is frequently not a native of the city and has no particular affiliations which would permit him to give other than his best. He has no means of bringing pressure to bear upon any one, should he prove inefficient and his removal be sought. Furthermore, regardless of what the public may excuse in an inefficient part-time man, they are highly critical if a full-time physician makes many errors.

If so-called inspection were the only activity of the school physician, we might get along with part-time men although our results would not be as good, and the expense of a full-time system is slightly less than a moderately paid part-time system, for a better or equal quality of work. The chief disadvantages of the part-time physician are the fact that he is given small pay and is, therefore, compelled practically to give his time if he does his work as desired and also he must care for his private practice at all times first, since the major part of his living comes from that source. Admittedly he does all he is paid for and a great deal more. The young physician anxious to make good and the old physician who no longer cares for much practice but who enjoys the school atmosphere and takes the work as a hobby are the exceptions to this statement. In a word, you get just what you pay for, since most physicians are doing their share of charity work in their practice or in clinics.

No one denies that the part-time system confines itself to the so-called inspection, yet the health activities in a school system are numerous. The beginning public interest in matters of preventive medicine means we will increase our Eye-Sight Conservation Classes, our Fresh Air Classes, and our special classes for the mentally deficient. All these, properly administered, must have a physician as adviser, if only for the prestige given to the needs of such classes. In addition to watching the physical defects we must watch physical conditions and in my experience locally in a remarkably well-balanced system I have already found it advisable to change the room of one of the Eye-sight Classes to one with proper exposure to the sunlight and to advise as to proper fixtures and lighting for the new room. In the Fresh Air Classes we found other remediable details such as changing rather uncomfortable reclining chairs to cots; keeping in mind shifting location to suitable lots with plenty of good air and little dust and noise; considering types of buildings and substitutes for our portables because of desired ventilation advantages for these classes; introducing the one-session day with lunch as well as milk, to avoid exhausting these children at noon through carrying lunches for their parents to their places of work, the children returning completely worn out. Incidentally, the really liberal number of classes was so few that a high standard of admission had to be made. In regard to the number of classes for the mentally deficient we found that the provision was inadequate and we must soon make arrangements for the types of children whom such men as Fernald believe need more advanced types of manual training than basket work, the most desirable being certain work with tools, piling bricks, and other rough tasks.

Oversight of sanitary conditions with close relation to the engineering department gives the benefit of medical supervision to the supervision of the expert in the mechanical side of the situation. In this connection it is important to interest the various janitors in sanitation. Today the janitor must be more and more of a trained thinking person rather than simply a sweeper and washer. Talks to janitors in meetings and individual conferences are of the utmost importance and if one undertakes temperature and ventilation studies, the co-operation of both teachers and janitors is essential to satisfactory results. Definite evidence of an unsatisfactory heating and ventilating system often results in action by the Board.

Supervision of athletics from a medical point of view results in less avoidable accidents and Physical Education carried out with medical supervision, and directed toward remedying group defects as well as general building up is bound to get better results, and the encouragement of thorough study of posture cases by proper apparatus will give dependable findings rather than guess work.

Definite health teaching is required in most states and the selection of the books or at least the approval of certain ones, plus certain definite educational measures to bring out a few important points of a strictly medical and sanitary nature give splendid results, most of all in times of great stress, such as epidemics. The use of health subjects in courses in English, drawing, and elsewhere when the interpolation will not destroy the original purpose of the course will give further teaching without any extra time. For the older students health talks and demonstrations by a responsible person create interest and benefit the pupils.

In any health system the teachers are the really important factor and the sooner normal schools train teachers thoroughly in the early recognition of contagious disease as well as in the health management of their classes, the less need there will be for extensive health departments. A properly trained teacher should be able to explain the Schick Test just as much as the binomial theorem. Therefore, the health director must find means of instructing the teachers or at least certain of them in every school, that they may aid the work. Principals usually through long experience have certain definite ideas of first-aid and minor treatment, though not always the correct ones. Their ability to recognize early contagious disease is real and very valuable.

Parents cannot be expected to take great interest in health work unless they know what it covers. Most parents believe in the old-fashioned inspection, but feel it is inadequate. The daily press here is of the utmost value and my own series of articles in the local papers have helped in avoiding many difficulties and have won the interest and frequeqntly the co-operation of the readers. Simple, non-technical language is essential. Support of the press is indispensable.

Special tests, such as the Schick Test, are best done by the Department until local interest is aroused and then the more progressive medical men will frequently offer the advantages to their patients upon seeing the satisfactory results.

The examination of children between 14 and 16 for employment certificates becomes an entity instead of a makeshift in full-time hands and the correlation of a cumulative school health record with the findings of the employment examinations means that we have a good record of the child from entry to school till 16 years old. Such a record permits proper judgment as to fitness for a definite kind of work.

No field is more important than the fight against tuberculosis, and here the introduction of monthly weighing, with report to parent, to replace mere inspection, on the monthly report card; and special nutrition instruction as needed and physical investigation by complete, thorough physical examination, as indicated and permitted, will eventually reduce the incidence of the White Plague among school children, more especially if we can give the child fresh air rooms when needed.

Supervision of school lunches and distribution of milk require little time, the work being mostly of the promotion type, but the results are excellent.

School nurses have been and always will be the bulwark of a school health system. They must act as sorters and refer cases as needed for the more expert medical advice. Properly trained, they will waste but little of the physician's time, being able to handle many minor matters themselves. Their contact with the pupils and teachers must be close, and their health teaching, properly directed, must enter the homes as well as the schools. The sooner we recognize that the school nurse is a specialist and treat and pay her as such, the better type we shall have. A nurse can handle just as many or few children as desired, thoroughness of work depending on the number. Personally, I believe that one to two thousand children is enough and the results will warrant this.

My ideal system would consist of a full-time director, such other part-time or full-time physicians or specialists as the situation demanded, and a large corps of nurses. If one has certain substitute physicians and nurses trained in one's particular executive system, the skeleton department can be expanded easily and rapidly in epidemics.

The advantages of a full-time department under the direction of the School Board are efficiency, co-operation, definite control and responsibility, and oversight or advice for the school system in many matters not covered in part-time departments. I predict that this is the system which will prevail in the future.

BIBLIOGRAPHY.

Rosenau: Preventive Medicine and Hygiene.
Gulick and Ayres: Medical Inspection of Schools.
Cornell: Health and Medical Inspection of School Children.
Hoag, Terman: Health Work in the Schools.
Publications of the Child Health Organization.
Publications of the Department of the Interior.
Fernald: Departmental Communication.
Rowell: The Necessity of Thorough Training in School Health Work for Teachers. Jour. School Board Administration, April, 1923.
Rowell: The Handling of Child Labor in New Bedford. The Nation's Health. Published shortly.

◆

ARE AMPUTATION STUMPS RECEIVING ADEQUATE AFTER-CARE?

BY CARL BEARSE, M.D., BOSTON.

Of recent years there has been more interest shown in convalescent cases due to the efforts of Codman, Insurance Companies, Workingmen's Compensation Acts, and end-result studies by various hospitals. The object of this study is to ascertain how much interest is being shown in recent amputations after the wounds have healed.

The information upon which these observations are based was obtained through the aid of artificial limb manufacturers in Boston. Questionnaires were sent to all of the limb makers whose standing was such that the government had purchased artificial limbs from them for ex-service men. There were eight such firms; six* of them furnished the information desired. One limb maker stated that he did not think that doctors knew much about amputation stumps, and could not see where any such study as contemplated could help anyone. The other repeatedly promised to help, but has not as yet been able to find time to do it!

---

*The limb makers who furnished me with the data, and to whom I desire to express my appreciation, are: George R. Fuller Company, A. H. Mooney Company, New England Artificial Limb Company, Pomeroy Company, Rich & Ricker, United Limb and Brace Company.

The questionnaires called for the last ten consecutive cases ordering their first artificial limb. While a larger number of cases would have been preferred, the difficulty in some instances of getting even ten replies from a limb maker made it seem wise to be content with this number. To this series of 60 cases, the writer added five similar cases that had been referred to him during the time this investigation was being made, making a total of 65 cases.

The information called for in the questionnaires was as follows:

A. Reasons for amputation.
B. Age of patient.
C. Is this patient still under a physician's care?
D. Through what channels did this patient come to you?
E. What directions were given by the surgeon in the way of after-care.
F. Length of time between amputation and ordering of limb.
G. Describe the stump.

The replies in each series were practically the same, so that the observations to be made were just as constant in one limb maker's clientele as in any other.

A. REASONS FOR AMPUTATION.

While this particular question has no bearing on the investigation, it was included as a matter of interest, in an effort to discover the ratio between amputations for trauma and disease. In this series of 65 cases, 42 amputations (64%) were performed following accidental injury; 22 (34%) were for disease, and one for club foot. A further analysis of the 22 cases under the disease heading showed that:

10 (15%) were for gangrene in diabetics.
5 (7%) were for gangrene in non-diabetics.
3 were for bone tuberculosis.
2 were for osteomyelitis.
1 was for sepsis.
1 was for gangrene resulting from frost bite.

B. AGE OF PATIENT.

This question was included in an endeavor to discover:

(a) At what ages the disease processes developed which necessitated amputation; (b) Whether age influenced the healing of the stumps.

(a) Of the 10 that had amputations performed because of diabetic gangrene:

1 was in the fourth decade (40 years).
4 were in the fifth decade (all were 50 years of age).
3 were in the sixth decade.
2 were in the seventh decade (they were 72 and 75 years of age).

Of the five that had suffered amputations because of non-diabetic gangrene:

1 was in the fifth decade (58 years).
2 were in the sixth decade (62 and 66 years, respectively).
2 were in the seventh decade (72 and 74 years, respectively).

(b) The healing time is here taken to mean the period between the amputation and the purchase of a permanent artificial limb.

In the diabetic group of 10:
1 called at 2 months.
4 called at 3 months.
2 called at 4 months (including 1 at 72 years).
1 called at 9 months.
1 called at 10 months.
1 called at 12 months (62 years of age.)
In the non-diabetic group of five:
1 called at 2 months (66 years of age).
2 called at 4 months (including 1 at 74 years).
1 called at 6 months.
1 called at 10 months.

It is interesting to observe in this connection that in this group, where, because of age and sepsis usually accompanying a gangrenous process, the average length of time elapsing between amputation and purchase of an artificial limb was only 5.3 months.

No analysis from an age viewpoint was made of the traumatic group, as it is obvious that accidental injury may occur at any age. The youngest wearer of an artificial limb was five years of age.

C. IS THIS PATIENT STILL UNDER A SURGEON'S CARE?

Only 11 or 17% stated that they were still under a doctor's care or supervision, and 54 or 83% had been discharged and thrown on their own resources.

D. WHAT DIRECTIONS WERE GIVEN BY THE SURGEON IN THE WAY OF AFTER-CARE?

6 (9%) received careful directions (including assistance in choosing a limb).
4 received vague directions as, "You ought to wear a bandage to toughen the stump."
2 were told to wait a year before calling on a limb maker.
1 was referred to the out-patient department of a hospital for after-care.
1 was referred to a nurse.
51 or 78% received no directions whatever.

E. THROUGH WHAT CHANNELS DID THIS PATIENT COME TO YOU?

The object of this question was to discover the number of physicians that were sufficiently interested to refer their patients to a limb maker.

Only 17 (26%) were referred by physicians.
18 (27%) came because of limb makers' advertisements or circular letters.
25 (40%) were referred by other wearers of artificial limbs.
2 were referred by an insurance company.
1 was referred by a nurse.
1 was referred by a druggist.

F. LENGTH OF TIME BETWEEN AMPUTATION AND ORDERING OF LIMB.

(This includes all of the 65 cases in the series.)

3	called	within	2	months.
12	‘‘	‘‘	3	‘‘
15	‘‘	‘‘	4	‘‘
2	‘‘	‘‘	5	‘‘
3	‘‘	‘‘	6	‘‘
3	‘‘	‘‘	7	‘‘
3	‘‘	‘‘	8	‘‘
4	‘‘	‘‘	9	‘‘
4	‘‘	‘‘	11	‘‘
5	‘‘	‘‘	12	‘‘
2	‘‘	‘‘	13	‘‘
1	‘‘	‘‘	15	‘‘
1	‘‘	‘‘	16	‘‘
2	‘‘	‘‘	18	‘‘
1	‘‘	‘‘	19	‘‘
1	‘‘	‘‘	24	‘‘
1	‘‘	‘‘	3	years.
1	‘‘	‘‘	6	‘‘
1	‘‘	‘‘	8	‘‘

The average for this whole series was 10 months.

This particular phase of the study was most interesting because as shown in Table E, only 17 (26%) had been referred by physicians, and yet 35 (54%) had called to purchase an artificial limb within six months. The reason for this is due largely to the efforts of the limb makers. There is a news bureau that scans the newspapers for items relating to amputations, copies are made of these items and are sent to limb makers, practically all of whom subscribe to this news service. The limb makers then send out circular letters to these prospective buyers, and as a result of these letters many call for the purchase of a limb earlier than they would have otherwise.

G. DESCRIBE THE STUMP IN DETAIL.

From the figures in Tables C, D, E and F, it is evident that most of these cases have not had much interest shown them after the operation, and this question was asked to discover in what manner it affected the stumps.

Six (9%) had flexed stumps. All of these flexion deformities were of short duration, the oldest being nine months after operation.

Twelve (18%) had stumps that were too long. In the opinion of the writer, an ideal below-knee stump is from 6 to 8 inches, but no stump was called too long unless it was over 10 inches. Symes stumps were excluded.

Six (19%) had discharging sinuses. The duration of these sinuses varied from five weeks to three years.

One Chopart's amputation was reported as unsatisfactory, in that it had a rigid ankle and much equinus.

Forty or 61% had stumps that had no adverse criticisms from the viewpoint of the limb maker, and 25 or 39% had complications that could have been prevented, or should have been remedied before the purchase of a limb.

All flexed stumps, in the opinion of the writer, can be prevented. Orr[1] in a recent communication, and Wilson[2] and the writer[3] in recent articles emphasized early locomotion with pylons as a preventative measure against stump flexion, and as preparatory treatment for the stump before the wearing of a permanent artificial limb.

The 12 cases of over-long stumps should not have occurred. As pointed out by the writer,[3] below-knee stumps over eight inches in length are a liability rather than an asset, because "the stumps are usually more poorly nourished, they have a tendency to ulcerate, are more affected by cold, and the scar is more liable to break open." Also, if the stump is too long the artificial limb cannot be tapered off so that both ankles will look alike.

The cases with discharging sinuses should not, it is the writer's belief, be fitted to permanent artificial limbs, because there usually is accompanying inflammation, which is oftentimes exaggerated by the wearing of such a limb. The sinus should be treated on surgical principles, and during this period a temporary limb or pylon may be worn.

There was a double Symes amputation in the series, and it was reported as satisfactory.

There were only two arm amputations in this series.

IMPORTANCE OF THIS SUBJECT.

It has been stated[4] that there are 30,000 amputations performed yearly, and that in this country there are 500,000 persons who suffered an amputation of some type.

An effort was made to check these figures up. In a personal communication from William M. Stewart, Director of Bureau of Census, Department of Commerce, he stated that he could not give the number of amputations in this country, but sent a report[5] of the value of limb makers' plants, and the amount of their products. For the year 1919 there were 177 establishments, with over $2\frac{1}{4}$ millions of capital and $3\frac{1}{4}$ millions of output. Since the value of a limb varies from $75 to $200, it may be estimated that from 16,000 to 43,000 limbs are manufactured yearly. A certain percentage of these limbs are, of course, used in replacement, as the life of a good product is from five to eight years. It is evident from these figures that there are a good number of thousands of new amputations performed yearly.

CONCLUSIONS.

As a result of this study it has been found that in recent amputations:

1. The average interval between amputation and ordering of a permanent artificial limb was ten months. This interval was not protracted by the aged patients in the gangrenous groups, as their average was only 5.3 months. A ten-month interval is altogether too long, four to six months being ample under proper after-care.
2. Only 26% of these patients were referred to limb makers by physicians, the remainder received no professional advice in selection of a limb.
3. Only 17% had the fitting of their artificial limbs supervised by physicians.
4. 78% had no supervision whatever after the operative wound healed.
5. As a result, 37% had complications when they came to the limb makers, which interfered with or delayed the proper fitting of an artificial limb.

483 Beacon Street.

REFERENCES.

1 Orr, H. Winnett: Surg., Gyn. and Obstet, 1922, Vol. xxxv, p. 525.
2 Wilson, Philip D.: Early Weight-Bearing in the Treatment of Amputations of the Lower Limbs. Jour. of Bone and Joint Surg., April, 1922.
3 Bearse, Carl: The Adaptation of Amputated Stumps to Artificial Limbs. Surg., Gyn. and Obstet., 1922, Vol. xxxiv, pp. 541-546.
4 Prosthesis Magazine, Vol. i, No. 1, Oct., 1921.
5 Census of Manufactures, Govt. Bull. 1919, Table 17.

◆

HIGH AND LOW ENEMATA—A MISTAKEN CONCEPTION.

BY S. W. ELLSWORTH, M.D., BOSTON,
AND
F. E. WHEATLEY, M.D., BOSTON.

In Osler's Practice of Medicine, second edition, 1896, page 450, it is recorded under the heading, Intestinal Obstruction, that Jonathan Hutchinson "recommends that the patient be placed under an anæsthetic, the abdomen thoroughly kneaded and a copious enema given while in the inverted position. Then, with the aid of three or four strong men, the patient is to be thoroughly shaken, first with the abdomen held downward, and subsequently in the inverted position."

In Kassabian's Electro-therapeutics and Roentgen Ray, 1907 edition, page 344, it is stated that radiograms of opaque enemata "prove that the ileo-cecal valve is always continent. Tests on the cadaver showed that extreme pressure, beyond what would be possible in the living subject, is necessary to force it open."

These passages are quoted to show what the former authorities believed and taught in regard to the administration of enemata. Our present-day knowledge of the subject, gained by observation of the progress of an enema under the fluoroscope, is quite different, and yet we believe that much of the former teaching is still regarded as fact.

Our contact with physicians, nurses and patients who have received hospital care, has shown that the use of the term "high" and "low" enema is still in common usage, in spite of the many articles written by roentgenologists showing that these terms are misnomers. It is in the belief that existing literature on the subject has not been appreciated by physicians in general, possibly because most of the articles are written by x-ray men and published in special journals, that we feel justified in bringing the matter to the attention of the profession through the columns of this journal. We realize that the average physician seldom has occasion to administer an enema and therefore when he gives directions to another, he is speaking not from experience, but from what he has been taught in regard to the mechanism of filling the colon. Nurses, on the other hand, while they do have experience, are really working blindly under the instructions given by their training school.

It was with the desire to find out exactly what comprised the present-day teaching to nurses in regard to enemata, that we wrote to the Superintendent of Nurses in 27 of the larger hospitals in New England and New York, and received replies from 19. Of the 19, five only report their nurses are taught to make no distinction between the high and low enema. One produces the high enema by injecting the fluid and then causing the patient to lie first on the left side ten minutes, on the back ten minutes and on the right side ten minutes. The remaining thirteen consider a low enema one that is given with the rectal tube or tip inserted between three and six inches, and the high enema one where the tube is inserted between six and twelve inches.

In most of the replies where the technic was described in detail, the instructions were to have the patient lying on his left side. One of the replies was amusing, in that it stated that the physicians and interns frequently requested a "high" or a "low" enema, but that this request made no difference in the method of administration. We believe this nurse had the truest conception of the mechanics of filling the colon, which we will attempt to describe from our own experience. In general, the replies show that most nurses are taught to distinguish between a "high" and "low" enema, that the distinction is based upon the distance to which the clysma penetrates the colon, and that this can be regulated by the distance to which the tube is inserted. Many x-ray men have proven that this teaching is erroneous and that it is simply the result of following customary procedures, without investigating the result.

As roentgenologists, we have had occasion to observe, by the fluoroscopic method, a large number of enemata, and the ease with which the entire colon, and very frequently the lower portion of the ileum, are distended by a properly given enema, has impressed us so much that we feel that the effort on our part to correct the present state of misinformation would be of decided value.

We find that most patients can receive nearly two quarts of fluid by rectum with very little or no discomfort or even sensation, if given properly, and that it is possible to cause extreme discomfort and to fail to fill more than the rectum if given according to the directions furnished by most of the nurses' training schools.

Under the fluoroscope, we have inserted the rectal tube to a distance of eight inches and attempted to fill the colon, without success, apparently because of the fact that the presence of the tube so high in the colon produces a muscular contraction which prevents fluid from entering the sigmoid. When the tube is withdrawn so that it projects only slightly beyond the internal sphincter, the spasm relaxes and the enema is successfully administered. We have attempted to use pressure produced by elevating the reservoir to a distance of four feet, and have observed that the increase in pressure defeats its own object by producing a rectal spasm and an immediate desire to defecate. Attempts to insert the tube more than six inches usually result in simply producing a coil of tubing in the rectum. It is practically impossible, without the fluoroscope, to determine whether the tube becomes coiled or whether it enters the sigmoid. In any case, there is no advantage to be gained by inserting the tube far beyond the internal sphincter, because whether it coils or not, it acts as a foreign body and produces spasm and discomfort.

The method we have found to be most satisfactory is to have the patient lying face down, the tube inserted just beyond the internal sphincter—usually about three inches—and the solution, heated to body temperature, given slowly with a pressure produced by not more than eighteen inches elevation of the reservoir. When the patient feels any discomfort, it is wise to stop the flow until the sensation has passed. Many times it is possible to fill the lower portion of the ileum, with the patient feeling only the sensation produced by the presence of the rectal tube. Other times, the patient will feel the sensation produced by dilatation of the rectum, but if the flow is stopped immediately, this sensation soon passes off and the enema is allowed to continue. We have found that the position of the patient face down is possibly slightly better than on his back, because of the ease with which the tube is inserted and because of the fact that apparently the pressure produced by the patient's weight on his abdomen helps to obscure the sensation of a slowly dilating colon. It is easy to understand why the prone or supine position, where the plane of the colon is horizontal, is better than the position on either side. When the left side is down, the fluid has to ascend the vertical transverse colon to the hepatic flexure. When the right side is down, the fluid has to ascend the tortuous sigmoid and reach the level of the splenic flexure. Without x-ray control, unfortunately, we cannot be certain when the entire colon is filled, but as a rule, a normal adult colon will contain nearly two quarts of fluid before it becomes distended. If the amount injected does not exceed one quart, and further injection produces discomfort, it is probable that only the rectum and lower sigmoid are filled. In these cases, a delay of five minutes oftentimes relaxes the spasm which is responsible for the difficulty, and the second quart can be easily injected. When the enema is given properly, we find the patient has very little trouble in retaining the solution during an extended fluoroscopic study, and while radiograms are being made. This time often exceeds twenty minutes, and except for an occasional and fleeting desire to defecate, the patient experiences no difficulty.

The opaque enema is a very essential method of diagnosis of diseases of the colon. Many times patients will protest when told that an enema is to be given. They will state that they have never been able to retain even a cupful of water and look forward to the procedure with great apprehension. They are pleasantly surprised when they are told that the entire colon is filled, and often state that they experienced no discomfort whatever.

We feel that the enema is an extremely valuable method of cleansing the lower portion of the alimentary canal and that it should be a more frequently used method of administering therapeutic measures, including water. Its use at present, we believe, is restricted partly because of the unsatisfactory results of faulty administration. If it were generally known that the entire colon can be filled in practically every case without discomfort or even disagreeable sensations to the patient, the enema would be a more common procedure.

SUMMARY.

1. Former teaching concerning enemata is proven erroneous.
2. The terms "high" and "low" enema are misnomers.
3. The use of these terms is due partly to the faulty instruction of student nurses.
4. In the majority of patients, the intestinal canal can be filled from the rectum to a point beyond the ileo-cecal valve without discomfort.
5. The enema, as a therapeutic measure, is probably used less frequently than it would otherwise be, were it always administered properly.
6. Patients sent to x-ray examination may be told that the opaque enema is not uncomfortable.

520 Beacon Street.

◆

Book Reviews.

The Biology of Death: Being a Series of Lectures delivered at the Lowell Institute in Boston in December, 1920. By RAYMOND PEARL. J. B. Lippincott & Co. 275 pages. Price, $2.50.

This book, one of the Monographs on Experimental Biology, edited by Jacques Loeb, T. H. Morgan, and W. J. V. Osterhout, presents in a clear and readable way the problem of why we die when we do, and summarizes the results of investigations into this question. The book is well worth reading. For further review of its contents, see the JOURNAL, page 553.

The Successful Physician. By VERLIN C. THOMAS, M.D., Visiting Physician to Franklin Hospital, San Francisco. Octavo of 303 pp. Philadelphia and London: W. B. Saunders Company. 1923. Cloth, $4.00.

"The Successful Physician" is a book which contains much that might be of value to a young man just leaving the medical school. It surveys the field of medical endeavor and gives excellent advice in regard to the best locality in which to start, office equipment, professional relations and the conduct of the business side of a physician's career. The book, however, tends to be rather superficial; one feels that it deals with the surface of medical life rather than with its deeper and more worth-while aspect.

We would criticize also the advice given by the author in regard to the manner in which the young physician should conduct himself. It is our belief that a doctor should be sincere above all else; that the development of his individuality is the true recompense for the sacrifices of a professional career. If, as Dr. Thomas would imply, he steers his course with an eye always to the enhancing of his popularity and to the effect which he is having upon his patient, he must necessarily lose the fine flavor of mental independence upon which true success depends. We maintain that it is beneath a doctor's dignity to curry favor with his clientele by means of flattery, but Dr. Thomas, on page 60, says, "It does no harm to flatter a little, for everyone likes to hear nice things about oneself."

The practice of medicine should bring with it financial success, but when this standard of achievement is sought through trimming one's sails to take advantage of the cheap breeze of popularity based upon a conscious employment of flattery and insincerity, the profession loses that quality which distinguishes it from all others. For this reason, although we recognize its many good qualities, we cannot wholly approve of Dr. Thomas' book.

Protists and Disease. By J. JACKSON CLARKE. New York: William Wood & Co. Pp. 229. Price, $4.50.

The thesis of this book is that the inclusion bodies in molluscum contagiosum, smallpox, syphilis, cancer, rabies, are parasites. To support this contention the author attempts to show similarities between these cell inclusions and various fungi and protozoa. While unquestionably sincere, he permits his illustrations to convey wrong impressions through the tremendous disparity in magnification of his inclusion bodies and known micro-organisms used in comparison. It is, of course, true that in most instances the magnification is stated, but as the book will impress only the neophyte, the reviewer objects. Even granting that some of the bodies under discussion are parasitic, evidence other than that brought to bear by the author is absolutely necessary to carry conviction, while to most pathologists his contentions in regard to syphilis and cancer seem absurd. To anyone not familiar with the nomenclature of cryptogamic botany the book will prove to be unintelligible. It is quite natural that a book of this sort should contain many statements that can be challenged, for instance the statement that gives the impression that mitochondria are bodies that may be confused with chromatin material. The only value that the book has in the mind of the reviewer is the possibility that it may reveal to chance readers the fact that fungi are very interesting things to study. But even though he be fairly familiar with cryptogamic botany and an expert in pathology and histology, he would fail to make the connections which the author intends him to. But on the whole the book is to be deplored, because if it influences the reader at all, he will have much to unlearn.

High Frequency Practice. By Burton Baker Grover, M.D. The Electron Pres. 1922.

This book will be of interest to both the student and the professional, as it deals with the fundamentals as well as their practical application, and handles both with careful detail.

Chapter 1—The opening chapter covers adequately the A.B.C.'s of electricity as it pertains to electro-therapy. The atom and electron are first defined and their properties and functions indicated; radio-activity and energy are in turn analyzed. The human mechanism is then introduced and discussed from a standpoint of electricity; here we find a careful study of the human body with its intricate structure of generators, vibrators, rheostats, conductors, etc., and the action and reaction of body currents produced.

The principle of the primary cell is outlined from both its electrical and physiological outlook. The various theories of light are presented, and the author's conclusions drawn which border on the Newtonian theory, that light is due to the frequency and undulating movement of electricity. Under this subject wave lengths or light frequencies as they produce ultra-violet rays, x-rays, and gamma rays are demonstrated and their physiology carefully treated.

Chapter 2—The next step is the study of high frequency currents, their characteristics, source and production. The principle of the alternating current is definitely explained and the method and means of a change in frequency are illustrated. The transformer and condenser are described and their function clarified by diagrams. The Oudin cell is treated in like manner. Illustrations and a detailed account of types of machines and various forms of spark gaps used are brought forward.

Considerable space is given over to a synopsis of the physiological action of high frequency currents on the human body and the results effected.

The different types of electrodes are fully described; the advantages and disadvantages of each and their particular uses are demonstrated clearly.

A general technic for therapy is then outlined and precautions noted.

In conclusion, a survey of the salient features of auto-condensation, auto-conduction, and local auto condensation is made with their relative contra-indications and precautions.

Chapter 3—The application of these basic principles to medical and surgical diathermy and high frequency therapy forms the general topic of the last half of this book.

Under medical diathermy the author brings in the following essentials: its definition, differentiation, physiology, physiology of the cell, technic, time of treatment, and contra-indications and precautions.

The subject of surgical diathermy is well developed. Especially illuminating are the explanations of desiccation and electro-coagulation.

Before high frequency therapy is brought forward, a compact but comprehensive study on blood pressure is presented, touching on the physiology, etiology, and important factors.

Since all diseases commence with, or have pain as a symptom at some time during their course, the writer has wisely set apart a few pages to its discussion, in which he indicates the benefit derived from electro-therapy in treating it.

Chapter 4—The chapter on high frequency therapy is exhaustively treated. Herein the symptoms of all diseases or disturbances amenable to high frequency currents are first studied, then the methods of attack determined and described in detail and the results noted. In the application of high frequency currents to diseased or perverted conditions of the human organism mentioned in this volume, it has been the endeavor of the writer to give a physiological reason for their use, and this he achieves—especially marked in this chapter.

Chapter 5—The final treatise is on the use of high frequency currents in the treatment of ocular diseases. The author recommends electro-therapy in the treatment of these cases, not as an absolute cure in itself, but as an adjunct to other well known measures.

This discourse on diseases of the eye is one of the few devoted to the subject, and should be of valuable aid to the ophthalmologist. As in the preceding chapters, the writer first describes the disease, its causes and symptoms, and then the treatment advised is outlined.

The outstanding feature of the volume is the elimination of all non-essential factors dealing with the subject, and the presentation of only the essentials, and this in itself is a credit to any scientific publication.

The Kingdom of Evils. By E. E. Southard, M.D., and Mary C. Jarrett. New York: Macmillan Co. 1922. 650 pp.

This book, like others of Dr. Southard's, reflects the extraordinary dynamic, versatile and original mind which he brought to bear upon all subjects. A veritable library is crowded into the one volume. In it one may find a system of philosophy, a text book of psychiatry, a treatise on social service, an outline of mental hygiene, and a romance of human life. The main purpose, however, is to present in a practical way the field for social service in psychiatry, and this theme is kept always in the foreground. The text is built around a hundred cases studied medically and socially at the Boston Psychopathic Hospital. These cases represent practically all the main groups of mental and nervous disorders, and touch in some form on most of the problems to which human kind is heir: individual, domestic, social, and moral. Miss Jarrett, Dr. Southard's collaborator in the work, was formerly Chief of Social Service at the Psychopathic Hospital, and is at present connected with the Smith College Training School for Social Work.

The book is divided into four parts. The first three present the case material. The fourth discusses methods and general principles. There is an appreciative introduction by Richard Cabot. The uniqueness in outline and classification of the subject matter would almost serve to identify the author if names were omitted. While this treatment produces a brilliant illumination for the guidance of the reader, it is questionable if much practical use will ever be made of such a system by the majority of the profession, whose tastes and capacities hold them to more conventional paths.

Book 1 deals with the three major spheres of social work: Public, Social and Individual. Seven cases are described representing these problems singly and in all combinations. Dramatic interest is served by the titles, viz.: "Agnes Jackson, pathetic nuisance (P.S.I.) Richard Sully, morbid altruist. (P.S.) Nora Campbell, ladylike adventuress (P.)," and so on throughout the list.

Book 2 comprises thirty case histories illustrating "The Five Major Forms of Evil in the Regnum Malorum." These are, Morbi (disease); Errores (faulty training); Vitia (vice); Lligia (legal entanglements), and Penuriae (poverty). Again cases have been selected to show major difficulties in one, two, and in all combinations of these spheres.

Book 3 lists the remaining sixty cases under a classification of mental and nervous disorders original with Dr. Southard, but conforming in a general way to the Kraepeliman system.

Appendices give detailed illustration of social service forms and record taking, and contain discussions of the legal phases of psychiatry by Roscoe Pound and Frankwood Williams.

The book will become a standard text for social workers and in addition should be of wide general interest to those concerned in any capacity with the "Public, Social and Personal" problems of human beings.

CANCER CURE.

The *British Medical Journal* states that the announcement is made from Canada that 2715 claims have already been received for the prize of $100,000 offered by Lord Atholstan, of Montreal, for the discovery of a cure for cancer; claims have come from 41 different countries. It is pointed out, however, that claimants must satisfy a recognized medical faculty or leading medical society in his or her own country first that there is some scientific basis to justify the experimental investigation of the professed cure, and that any cases said to have been successfully treated were in fact cases of cancer.—*Science*.

Current Literature Department.

ABSTRACTORS.

Gerardo M. Balboni
Wm. B. Breed
Laurence D. Chapin
Austin W. Cheever
Randall Clifford
Isador Coriat
Ernest M. Daland
Horace Gray
Robert M. Green
John B. Hawes, 2d
John S. Hodgson
Fred S. Hopkins
Chester M. Jones
Charles H. Lawrence
Herman A. Osgood
Francis W. Palfrey
Edward H. Risley
William M. Shedden
George G. Smith
John B. Swift, Jr.
Wilder Tileston
Bryant D. Wetherell

Drug Eruptions from the Clinical Aspect, with Special Reference to the Recent Medicaments.

Wise and Parkhurst (*Arch. Derm. and Syph.*, Vol. vi, No. 5, Nov., 1922) take up in detail with discussion of the literature eruptions from several drugs. Arsphenamin can give a variety of conditions from erythema to very severe arsenical dermatitis, etc. An acute urticaria or erythematous rash may come out within a few hours or a day or two after the injection. A subacute type occurs from six to twelve days after the first injection, may soon fade and may recur. A chronic form occurs, sometimes after the fifth or sixth treatment, sometimes several weeks after the last injection; there is a severe generalized dermatitis going on to an extensive desquamation, the patient may be very sick or may die. Rarely there occur "fixed" eruptions similar to cases of susceptibility to phenolphthalein. Lichen planus-like eruptions may occur, genuine lichen planus; now and then the ordinary arsenic dermatoses turn up, keratoses, palmar and plantar hyperkeratoses, and melanoses. They find no authentic report of argyria from silver arsphenamin. All these manifestations are discussed in detail, with their bearing on diagnosis and treatment.

Barbital and medinal may produce morbilliform and pemphigoid rashes. Codeinal, adelin, bromural, phenobarbital, cinchophen, pyramidon, melubrin, acetylsalicylic acid, hexamethylenamin and phenolphthaelin are all reported to cause a variety of manifestations, often confused with the exanthemata.

[A. W. C.]

Industrial Dermatitis at the Massachusetts General Hospital.

Lane (*Arch. Derm. and Syph.*, Vol. vi, No. 5, Nov., 1922) carefully investigated 154 cases of definite industrial dermatoses occurring in the Massachusetts General Clinic, exclusive of burns, keloids, infected conditions, etc., during 1919, 1920, and 1921. His conclusions are as follows: Seven per cent. of dermatitis venenata and eczema, or almost three per cent. of all admissions to a skin clinic of a large hospital, were occupational in origin. It is fair to estimate that four or five plus per cent. of admissions to a skin clinic may be occupational. A more careful study should be made of the individual patient. A more exact study of trade processes should be instigated in case of questionable eruptions on exposed surfaces. The consideration of preventive measures should be a greater factor as we see these cases in a clinic. Some name providing a more accurate place in our nomenclature should be provided for this definite etiologic group of cases. [A. W. C.]

PROCAIN DERMATITIS AMONG DENTISTS.

GASKILL (*Arch. Derm. and Syph.*, Vol. vi, No. 5, Nov., 1922) reports nine cases in detail. He considers these cases as rare, at least much less common than dentists themselves believe. He suggests the use of rubber gloves or rubbing into the hands just previous to handling the procain a preparation made up of 25 per cent. of hydrous wool fat and 75 per cent. of petrolatum, heated in a water bath with 2 per cent. of phenol, thoroughly mixed and allowed to cool in a jar. [A. W. C.]

THE PRESENT STATUS OF LEPROSY IN THE HAWAIIAN ISLANDS.

CORLETT (*Arch. Derm. and Syph.*, Vol. vi, No. 5, Nov., 1922) states that leprosy was introduced some time during the last century and has spread rapidly among the Hawaiians, who regard the disease so little that complete segregation of them is very difficult. The disease is most prevalent during school age, and in the male. The method of dissemination has been most carefully studied but not cleared up. The ethyl esters of chaulmoogra oil undoubtedly help some cases, but no specific has yet been found. [A. W. C.]

THE USE OF ULTRAVIOLET LIGHT IN ERYTHEMA INDURATUM.

OLIVER (*Arch. Derm. and Syph.*, Vol. vi, No. 5, Nov., 1922) describes his results in the treatment of five cases of this condition, all of the nodular type, but not ulcerated. All were in women under thirty years of age, with poor peripheral circulation, all of the tuberculous group. The Kromayer lamp was used with firm pressure, from one to two minutes to each area. The results were excellent. [A. W. C.]

THE PREVALENCE OF YAWS (FRAMBESIA TROPICA) IN THE UNITED STATES.

FOX (*Arch. Derm. and Syph.*, Vol. vi, No. 6, Dec., 1922) discusses the literature of the disease in this country, and presents in detail the report of a case seen in New York recently from the West Indies. He concludes that at present yaws is a rare disease in the United States in spite of its prevalence in parts of the West Indies. Most of the cases so far reported have been observed in our northern ports. The disease is not likely to become established in so northern a climate as even our southern states, but with modern diagnostic methods and treatment it could be readily eradicated if it should. [A. W. C.]

STUDIES IN THE CHEMOTHERAPY OF FUNGUS INFECTIONS. I. THE FUNGISTATIC AND FUNGICIDAL ACTIVITY OF VARIOUS DYES AND MEDICAMENTS.

SCHAMBERG AND KOLMER (*Arch. Derm. and Syph.*, Vol. vi, No. 6, Dec., 1922) report in detail their results in testing out in cultures of two of the moulds of ringworm and that of favus the restraining power and fungicidal activity of several commonly used antiseptics. They found certain selective affinities of certain medicaments and dyes for the moulds as well as for bacteria, and suggest that there may be two uses made of this fact, improvement in cultural methods and therapeutic experimentation. [A. W. C.]

JOURNAL OF METABOLIC RESEARCH, VOL. II, JULY, 1922.

THIS issue was received December 20, a fact which suggests a hope that it may be practical soon to have the date of the issue and the date on the Journal correspond. This seems a reasonable expectation, when so many authors concern themselves over questions of priority of publication.

Although no index to Vol. I was recei[illegible]s first issue of Vol. II, it is to be hoped [illegible] be furnished, in view of the marked degr[illegible] the index enhances the value of any work t[illegible] one wishes to refer again after the first reading.

One wonders why the references follow an unusual style: Vol., Year, Page, rather than either of the two styles in most common use today, namely: (a) that of longest standing, and still used by many journals such as this JOURNAL and the *American Journal of Medical Sciences*, *i.e.*, Year, Vol., Page. (b) the new style urged by the American Medical Association in its several publications, *i.e.*, Vol., Page, Year. This is a small point in itself, but one which in the aggregate would, if standardized by agreement of the many journals, save writers a large amount of time in compiling bibliographies correctly.

D. Marine and E. J. Baumann, in their 6th paper on the "Influence of Glands with Internal Secretions on the Respiratory Exchange," came to the following conclusions: (1) A prolonged absolute rise in heat production has been obtained in 82 per cent. of 33 rabbits in which both suprarenal glands were completely removed. (2) The period of increased heat production may last from a few days to several months. (3) The increased thermogenesis is in part dependent on the increased rate of discharge of the iodin containing hormone from the thyroid.

J. R. Murlin, B. Kramer, and J. E. Sweet, writing on "Pancreatic Diabetes in the Dog. The Influence of Pancreatic Extracts Without the Aid of Alkali upon the Metabolism of the Depancreatized Animal," conclude that "Although these experiments were made during the years 1913 to 1916, they are presented to confirm the previously recorded observations of Banting and Best. . . . As matters stand, the credit for final and complete demonstration of the hormone (or enzyme) belongs to Banting and Best." This paper, which deals with laboratory studies, may well be of interest to those interested in methods of preparations of the extracts. It does not have any immediate bearing on the practical use of the extracts with patients.

G. T. Pack and F. P. Underhill go into detail on structural chemical formulae and urinary composition, especially as regards nitrogenous metabolism with reference to the influence of benzyl benzoate. They consider it "demonstrated that benzyl benzoate will be a valuable addition to the physician's armamentarium".

F. S. LeClerq gives a very interesting report on "Further Experiments with High Fat Diets in Diabetes." He reports three patients, all severe, showing "the effect of increasing the diet with fat beyond caloric tolerance. Injury of the assimilation is manifested by a rise of blood sugar. . . . There is agreement with Newburgh and Marsh in the belief that the blood sugar should be kept normal, especially in young patients. . . . There is disagreement with the view of Newburgh and Marsh that this result can be achieved, especially in severe cases, without restriction of fat, total calories and body weight.

. . . The attempt to prevent undernutrition by giving fat or any other kind of food prevents also the benefits of undernutrition." It may be doubted whether this statement represents justly the view of Newburgh and Marsh, inasmuch as their diets were different from those studied by LeClerq, and in some cases actually lower in both fat and calories.

All these protocols show that the urine was sugar free, except a faint trace on three days with patient No. 1, and the blood sugar therefore is used as a criterion of the effect of the diet. Tables and text are both worth careful reading. The following table which the reviewer has compiled for his own instruction may afford a summary of some interest. It shows the approximate composition of the diet, at the time of discharge, with each of the three patients. T. G. indicates the total glucose calculated according to Woodyatt's formula. The next column gives grams of protein per kilo body weight, and the last column the calories per kilo body weight. This column shows that the average is 25, which is about the same or a little higher than Dr. Joslin is, I understand, accustomed to find practicable with his severe patients, many of whom get along with from 25 down to 20 calories per kilo. Considering similarly the grams of protein per kilo, we notice the figure 1.2, whereas Newburgh and Marsh, and others, including ourselves, ordinarily indicate 0.6 gram per kilo as generally adequate in several cases. Granting now the clarity of LeClerq's demonstration of the effect of fat, one wonders whether it can further be shown that the diet which he has used is better than the distribution of diet shown in the last two lines of the table. Both these diets are given to indicate distribution of diet which we should be inclined to give in the Diabetic Clinic at the New England Deaconess Hospital to patients such as the theoretical average which I have constructed in Line IV, from LeClerq's cases I, II, and III. If we take the patients of the same weight, 39 kilograms, and the same total glucose tolerance, namely 45 grams, and the same calories per kilogram, namely 25, we should be inclined to distribute the diet as in line V, whereas if we should decide to give 20 calories per kilogram we would then incline to the distribution as in line VI. In other words, this represents a fixed policy of keeping the carbohydrate high, which has been urged by Dr. Joslin on the one hand, and opposed by Newburgh and Marsh, as well as by workers in the Physiatric Institute. This we feel is a very important point, and one which can be settled only by analysis of tables such as given by LeClerq with weighed amounts of carbohydrate, protein and fat given over a prolonged period with a relatively small number of clearly defined changes in diet during that period.

		C	P	F	Cal.	T.G.	g.P/K	W	Cal./k.
LeClerq	I	5	40	57	693	35	1.1	35	20
LeClerq	II	10	55	115	1295	55	1.2	46.4	28
LeClerq	III	10	50	84	1600	48	1.3	37	27
Av.	IV	8	48	85	989	45	1.2	39	25
	V	20	23	90	989	45	0.6	39	25
	VI	20	23	70	780	45	0.6	39	20

Incidentally the value of this article is distinctly increased by its conciseness, namely, eighteen pages; and in fact the average number of pages to each article in this issue of the *Journal* is fifteen pages, which is a distinct decrease from the average in the previous issues, in three of which the average has been forty or more pages per article. One does not dispute that longer articles may be necessary, but one does feel that great detail deters many from even looking at the longer articles. [H. G.]

THE TREATMENT OF FLAT WARTS BY THE INTERNAL ADMINISTRATION OF MERCURY.

FOX (*Am. Journal of Diseases of Children*, January, 1923) reports 10 cases of flat warts which were treated by the use of mercury as first suggested by Dr. Charles J. White of Boston. In 50 per cent. of these cases the treatment was successful, and the author concludes that this method, because of its simplicity, should always be tried. Mercurous iodid in 1/4 grain doses is given three times daily.

[W. M. S.]

INTRAPERITONEAL TRANSFUSION WITH CITRATED BLOOD: AN EXPERIMENTAL STUDY.

SIPERSTEIN and SANSBY (*Am. Jour. of Diseases of Children*, February, 1923) show that fresh citrated blood can be given intraperitoneally in rabbits without danger. They prove that the blood is absorbed, and that a sharp rise in the hemoglobin and red blood cells results. They conclude that the "Intraperitoneal Transfusion with Citrated Blood" acts as a true transfusion, and not as the absorption of a nutrient material. The authors believe that the method will have practical application, and report one infant successfully treated in this way.

[W. M. S.]

THE EXCRETION OF FOREIGN PROTEIN IN HUMAN MILK.

STUART (*Am. Jour. of Diseases of Children*, February, 1923.), working at the Children's Hospital in Boston, comes to the conclusion that egg white protein cannot be demonstrated in the breast milk of mothers, and therefore does not consider that the eczematous lesions occurring in infants can be treated by the omission of egg in the mother's diet. Stuart's conclusions are based upon careful experiments on guinea-pigs and study of nine cases of infantile eczema. [W. M. S.]

FLAT OR WEAK FEET IN CHILDREN.

KLEINBERG (*Arch. of Pediatrics*, January, 1923) discusses the occurrence of flat or weak feet in children as follows: first, frequency and second its etiology. He calls attention to the frequent occurrence of this condition and considers that static disturbances, muscle weakness, rickets and trauma are among the common causes. He does not consider that heredity plays an important part in its causation.

The symptoms and signs of the condition are then discussed. He describes two types: the flaccid and the spastic, the latter being very infrequent. Pains in the legs and feet, together with awkward habits of walking were the common symptoms noted. The author emphasizes the importance of early treatment, first because of the deformity itself and second because of the progressive nature of the condition, and third because of the relation to this condition in adult life. "The essential point in treatment of flat or weak feet is the correction of the valgus or abduction of the feet." [W. M. S.]

THE HOOKWORM INDEX AND MASS TREATMENT.

DARLING (*Am. Jour. of Trop. Med.*, Sept., 1922) contributes a long and interesting article in which he emphasizes the importance of thinking in terms of hookworms harbored in the body of the infected person and of the number of larvae infesting the soil rather than in terms of percentage of persons positive for ova.

He urges the value of treating all the cases in a community within as short a time as possible in order to bring heavy soil pollution to an abrupt end. If a heavily infested soil can become lightly infested light and relatively harmless infections only can result. [G. G. S.]

GRAPHIC ANALYSIS OF CERTAIN FACTORS IN HOOKWORM CONTROL.

CORT (*Am. Jour. of Trop. Med.*, Sept., 1922) emphasizes the value of mass treatment and shows the importance of reducing soil pollution to a minimum before undertaking mass treatment. When a winter or dry season reduces soil pollution temporarily, this factor should be utilized. [G. G. S.]

ORTHOSTATIC ALBUMINURIA.

RUSSELL (*Quarterly Jour. of Med.*, Jan., 1923) reports a study of the hourly secretion of albumin and of urine in a series of cases of orthostatic albuminuria. In order to measure small amounts of albumin he used a method devised by himself, a standard suspension of barium sulphate being compared with the urine to be tested, after precipitation of the albumin, the urine being diluted until the haze obtained was equal to that of the standard. The comparison was made in a Gowers hemoglobinometer. The number of dilutions necessary to match the standard gives the number of "units" of albumin. The single unit is very small, the percentage being "probably in the third place of decimals." The method gives fairly exact comparative values, but does not pretend to give absolute figures.

In three cases which fulfilled fairly well the requisites of orthostatic albuminuria, in that the albuminuria was dependent upon the erect posture, an enormous variation in the amount of albumin excreted was noted, from one to two hundred and five units. There was no explanation for this variation, but it was noted that a high degree of albuminuria was always associated with a scanty secretion of urine, and that a copious diuresis would prevent albuminuria, even if the patient were standing. On some days there would be no albumin, although the patient was up all day. Standing erect always brought on albuminuria, but sitting, or standing and leaning forward did not. In only one of the three cases was there a cyclical variation, the urine passed in the afternoon being almost always free from albumin, though the child was up all day. Diet, and exercise when in bed, were without effect.

A series of four cases of mild acute nephritis in the stage of recovery was examined, and responded in a similar way to the standing test, one of them showing an increase from 1½ to 25 units in standing 10 minutes. They differed from the preceding cases, however, in that as they approached recovery there was no reaction to the standing test, but a marked albuminuria if they were up all day.

Russell was unable to find during a search of several years a single case that fulfilled all the requirements of a pure orthostatic albuminuria. All showed some indication of impairment of the kidney, either in the shape of a delayed diuresis following water intake, poor concentration of urea, an increased blood pressure, or the presence of casts (other than hyaline). He believes that the so-called orthostatic albuminuria is always accompanied by a mild and recoverable form of nephritis.

Most writers are agreed that there is no definite nephritis in these cases, that the albuminuria usually disappears later, and that signs of nephritis do not supervene. [W. T.]

OBSERVATIONS ON THE KAHN PRECIPITATION REACTION.

HOLMES (*Proceedings of the Washington University Medical Society*, October 9, 1922) reports that the precipitation test for syphilis proposed by Dr. Kahn, of the Michigan Department of Health, is a simple reaction obtained by a mixture in given proportions of patient's serum and an antigen. Should this test prove equal in sensitiveness to the Wassermann, its superiority to the latter reaction becomes obvious. The following is a report on 131 cases seen in the Washington University School of Medicine, according to the technique outlined by Kahn.

Two rows of tubes were set up in a rack, the first row containing .3 c.c. of inactivated patient's serum and .05 c.c. cholesterin antigen; the second row containing .3 c.c. patient's serum and .05 alcoholic antigen. Controls were used. The rack was shaken for three minutes and incubated overnight at 37 degrees. In the morning positive sera showed marked clumping; negative sera remained clear. The scale of reading can be made parallel to the familiar four, three, two and one plus of the Wassermann. The following table gives the comparative results of 131 cases with the regular Wassermann and the same 131 cases with the Kahn test:

Wassermann	positive	30
Kahn	positive	
Wassermann	negative	94
Kahn	negative	
Wassermann	negative	7
Kahn	positive	
Wassermann	positive	0
Kahn	negative	

It will be noticed there is a disparity in seven cases. In these cases the clinical evidence supports the Kahn test as against the Wassermann. The number of tests run is too small as a basis for conclusions, but results obtained to date are sufficiently significant to warrant further investigation. There have been various tests proposed as a modification of, or an improvement upon, the original Wassermann reaction, but very few have justified continued use. The Kahn precipitation reaction is a simple test which bids fair to supplant the Wassermann instance, and in the cases where it differs the clinical history has been in favor of the former test. If the Kahn reaction is proven to be what its originator claims for it, it would mean that the general practitioner could do this simple test in his office with little equipment and trouble, and little necessity for technical knowledge.

RESULTS AND TECHNIQUE IN THE TREATMENT OF CARCINOMA OF THE BREAST BY RADIATION.

LEE (*Am. J. Roent.*, Jan., 1923) reports that at the Memorial Hospital radiation in conjunction with surgery in the treatment of carcinoma of the breast has proven extremely beneficial.

X-ray is used routinely for preoperative treatment before a radical operation, giving one complete cycle of about 4 treatments over the whole breast and axillary and supraclavicular regions. After operation, when the wound is completely healed, two complete x-ray cycles are given covering the entire breast and lymphatic drainage areas.

Radium is also used. Among the five methods applied, namely: pack, tray, dental mould, insertion of bare emanation tubes, and the insertion of platinum needles containing radium emanation, the last-named produces the most favorable results.

In treating primary inoperable and recurrent cases, the best method now employed is external radiation by x-ray, with a technique of 10 in. spark gap, 12 in. focal distance, 4 mm. aluminum filtration, 4 m.a. of current, and a 15-minute exposure, followed by an implantation of radium bare tubes into the growth giving a complete dose at the first sitting.

The duration of life in case of primary inoperable carcinoma is markedly increased with the introduction of radiation. In treating the recurrent inoperable cases, which is by far the largest group, the surgeon must look to the radiologist for help, for treatment by radiation is practically the only hope for a check or a cure of the disease. [H. A. O.]

THE BOSTON
Medical and Surgical Journal
Established in 1828

Published by The Massachusetts Medical Society under the jurisdiction of the following-named committee:

For three years WILLIAM H. ROBEY, JR., M.D.
ROGER I. LEE, M.D.
ROBERT B. OSGOOD, M.D.
For two years JAMES S. STONE, M.D.
HORACE D. ARNOLD, M.D.
CHANNING FROTHINGHAM, M.D.
For one year HOMER GAGE, M.D., *Chairman.*
EDWARD C. STREETER, M.D.
EDWARD W. TAYLOR, M.D.

EDITORIAL STAFF.

DAVID L. EDSALL, M.D.
WALTER B. CANNON, M.D.
REID HUNT, M.D.
ROBERT W. LOVETT, M.D.
FRANCIS W. PEABODY, M.D.
JOHN P. SUTHERLAND, M.D.
S. BURT WOLBACH, M.D.
GEORGE R. MINOT, M.D.

WALTER P. BOWERS, M.D., *Managing Editor.*

ASSOCIATE EDITORS.

GEORGE G. SMITH, M.D.
WILLIAM B. BREED, M.D.
JOSEPH GARLAND, M.D.

SUBSCRIPTION TERMS: *$6.00 per year in advance, postage paid for the United States, $7.56 per year for all foreign countries belonging to the Postal Union.*

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the printer with galley proof of paper. Upon written request, authors will be furnished free one hundred eight-page reprints, without covers, or the equivalent in pages in articles of greater length.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The Boston Medical and Surgical Journal, 126 Massachusetts Ave., Boston, Mass.

LONGEVITY.

IT is probable that most of us, when we read in the daily press that So-and-so, the oldest man in ...... County, has died at the age of 108, pause for an instant to wonder why this particular man should have spun out the golden thread to such a degree. Sometimes our curiosity is relieved by the information published in the paper, that he attributed his great age to drinking rum, or to not drinking rum; to the daily use of tobacco, or to abstinence from the delicious weed. We are never told the real reason for his longevity, probably because, in any given case, it is difficult to say why he should have lived so long. From the study of a number of cases of extreme old age, however, certain deductions as to the cause of longevity may be drawn.

This question was the subject of a series of Lowell Institute Lectures given by Raymond Pearl in 1920, and recently published under the title of "The Biology of Death," (See Review, page 547). In this fascinating little volume Pearl considers the question of longevity from several angles. To begin with, he points out that there is nothing intrinsic in the cell which prevents it from living forever. Unicellular organisms, by a process of growth followed by cell division, achieve immortality. The organism and its descendants, viewed as a unit, will live on indefinitely, provided the environment is salutary. The same thing appears to be true as regards nearly all of the tissues of the metazoan body. Brain cells, kidney cells, in fact, nearly all the tissues of the body, have been cultivated *in vitro*. Provided they are supplied with fresh lymph, they appear to be able to exist indefinitely. The oldest culture of this sort has now been growing for fourteen years.

Why, then, do similar tissues in their natural habitat degenerate and finally cease to function? Pearl says it is because of their interrelationships and mutual dependence. "If one organ for any accidental reason, whether internal or external, fails to function normally, it upsets this delicate balance, and if normal functioning of the part is not promptly restored, death of the whole organism eventually results" (page 102).

From the study of causes of death arranged upon an organological basis, Pearl has been able to estimate the relative importance of the various organ systems. In the first year of life, death is most frequently due to breakdown of the alimentary tract and its associated organs. From age 1 to age 60 the respiratory system is responsible for the greatest number of deaths. From age 60 to age 90, the circulatory system causes most deaths. Pearl proposes this hypothesis: that those systems which, in the course of evolution, have become best adapted to their environment and have consequently progressed farthest from their original prototypes, as, for example, the central nervous system, are the least frequently responsible for the death of the organism. The ectoderm has travelled farthest and is least often a cause of death; the endoderm, which has changed least, is the most vulnerable system.

Pearl, from statistics compiled by several investigators, concludes that heredity is the one great factor in determining the longevity of individuals. The truth of this theory has been further borne out by experiments carried out by Pearl and others with the fruit fly. With this insect it was clearly proved that longevity was an inherited characteristic which followed Mendelian laws.

Another influence upon the longevity of these flies was their rate of metabolism, as influenced by temperature. Pearl suggests therefore that duration of life may be an implicit function of only the two variables, (a) Genetic Constitution, (b) Rate of metabolic activity. Heredity determines, within fairly narrow limits, the total energy output which the individual can exhibit in its lifetime.

So brief a summary of Pearl's monograph may be unconvincing. In the original lectures, however, his arguments are well substantiated by facts. His deductions should be very suggestive to those who are trying to increase man's span of years, and to those who look upon life as the one great, absorbing problem.

SLEEPING SICKNESS.

Vague ideas regarding encephalitis lethargica seem to exist in the minds of many people. That it is a very serious disease is an accepted fact, but the effect of classifying it as a malady that requires quarantine regulations may create in the minds of the laity an unwarranted fear of contagion.

The subjoined statements put forward by the United States Public Health Service are timely because better understanding relating to the disease may relieve some people of unnecessary concern.

Some boards of health have required isolation of these cases, but some very well regulated general hospitals are accepting them and only insist on placing these patients in single rooms and, in some instances, in wards. Until more accurate knowledge relating to the development of the disease shall have been acquired it will be well to avoid putting undue emphasis on the danger of contagion. The records of hospitals and the statement presented below seem to warrant these conclusions.

"The U. S. Public Health Service has no statistics in regard to the prevalence of encephalitis lethargica, popularly known as sleeping sickness, that are sufficiently reliable and complete to warrant a statement as to the extent of the disease throughout the United States," says Surgeon-General H. S. Cumming. "The disease is 'reportable' by physicians in comparatively few states; and in the larger part of the country the only data available are based on newspaper reports. Moreover, the disease is rather easy to confuse with some other diseases; and its prevalence is therefore likely to be unduly magnified. Thus, in an investigation made by Dr. H. F. Smith, of the Public Health Service, of the 1918-19 epidemic, 22 per cent. of the supposed cases had to be excluded as being really cerebro-spinal meningitis, cerebral syphilis, brain abscess, tuberculous meningitis, epilepsy, poliomyelitis, hysteria, or acute alcoholism.

"The disease appears to be only difficultly communicable. Not a single secondary case is known to have occurred in the immediate families of the patients reported in 1918-19, although some 900 persons were exposed.

"The fatality is rather high. Of the 159 cases studied by Smith death resulted in 46, or 29 per cent.

"It is interesting, though perhaps not significant, that the peak of the outbreak of 1918-19 was reached in New York City in January; in Virginia in February, and in Louisiana, Texas, and Illinois, in March. In California the largest number of cases reported in any one month was in April. Whether this progress was related to the season of the year or was merely a result of the spread of the disease is not known. Comparison with the present spread may throw some light on the subject.

"The disease is slow in development and long in duration. The period of convalescence is variable; in some cases recovery is completed within two weeks after the subsidence of the acute symptoms; but in others it is prolonged and leaves its record on the mind, on certain muscles, and on the nerves of the cranium. The mental trouble, however, usually passes off eventually.

"The appearance of encephalitis in epidemic form has, except for one epidemic reported from Austria, always been preceded by an epidemic of influenza. Forty-six per cent. of the cases studied by Dr. Smith had had influenza and 54 per cent. had not. The influenza-attack rate has been ascribed to the lowering of the vitality of the patients by the influenza; but it has also been explained as being really due to another attack of influenza which has invaded the central nervous system of the body. Whether or no there is any connection between the two diseases has not yet been established."

SMALLPOX AND VACCINATION.

THE annual campaign of 1923 for extension of vaccination to pupils in private as well as public schools, and the efforts of the opponents to block the legislation and to do away with all forms of compulsory vaccination, are matters of history.

In comparison with former controversies between proponents and opponents of the various measures, the hearings conducted by the legislative committees this year have been less spectacular. The opponents of vaccination requirements have argued that the present practice is an attack on personal liberty and also that there is danger of the introduction of septic material through the vaccination wound. The arguments presented in favor of vaccination have been scientific and logical and may be found in the papers by Dr. S. B. Woodward and Benjamin White, Ph.D., the first, under date of March 8, 1923, and the latter in this issue.

It is probable that many physicians endorse vaccination because they were taught that it is a valuable protective measure, just as they accept many of the theories advanced by professors in medical schools, without having given intensive study to the subject, and that they without any personal experience maintain the same belief by reason of confidence in those who are accepted as authorities.

A considerable number of practitioners are passive believers in vaccination and never participate in the controversies or even devote much time to an educational propaganda among their patients.

The tendency of the laity is toward a more or less critical review of medical claims and a considerable number of otherwise intelligent people have been led to feel distinctly hostile to compulsory vaccination. Some people who accept the claims for the efficacy of vaccination believe that its employment should not be enforced. Such people seem to be unable to comprehend the fundamental responsibilities of community life. They place the wish of the individual above the safety of the masses.

The almost universal belief that one person may not rightfully expose others to danger as applied to many of the obvious problems of life, is not endorsed by some in dealing with the prevention of smallpox.

Since the contest over vaccination is, in the vernacular of the state, a hardy annual, an educational campaign must be maintained because the destructive forces are organized and determined to eventually carry their contentions to a victorious conclusion. They have abandoned the policy of abuse and vituperation to a large extent and are now suave and persuasive. The uneducated mind may be vulnerable when the carefully prepared arguments, the faulty statistics and the appeals to prejudice are presented. Nobody wants to be subjected to a minor surgical treatment unless convinced of its value, and a very large number of persons would avoid vaccination if convinced that it is unnecessary or harmful.

It must be borne in mind that there is no stability in the minds of many people. Population is changing from day to day. The people with settled convictions are passing off the stage and new human material is taking the places made vacant. He who talks the loudest and longest will secure followers unless his arguments are shown to be unsound. Many do not realize the importance of education and reeducation.

Fortunately we have one great leader in the person of Dr. S. B. Woodward. He has not been content with his appeals to the legislature, for in season and out of season he has carried the message of the vital importance of vaccination to the readers of the daily press in his city, and has stoutly defended the attitude of the medical profession in its warfare against disease. In addition to showing the fallacies of opposing arguments he has explained the relation of the two organizations that have been and are actively opposed to vaccination; one, the American Liberty League, and the other, the Medical Liberty League, Inc., both of which began functioning in 1918. The first named has been operating in some thirty-six states and the second in Massachusetts. A president of the first has been or is vice-president of the second. The objective and methods of both are alike. Dr. Woodward has made a great contest and even since the legislative hearings has drawn the fire of fourteen antivaccination guns; but one man cannot win this battle.

Doctors are enrolled in the medical reserve corps to be ready for action if we should have another war. How many are now actively at work in combating the present war that is being waged against one of the most beneficent public and private health measures of all ages? All who care to enlist should read the articles by Doctors Woodward and White, for in them will be found the requisite ammunition.

PROFESSIONAL ETHICS.

The Bulletin of The American Society of Clinical Pathologists for January, 1923, publishes an account of the recent controversy over the acceptance of positions on the advisory board of a well-known advertising laboratory, by certain prominent scientists.

The objections which have been raised to the action of these men, first by the officers of the Colorado Society of Clinical Pathologists and later, after its formation, by the American Society of Clinical Pathologists, seem to be, first, that the laboratory in question advertises its procedures, implying that they may be done more accurately than in some other laboratories (which there is no reason for doubting); second, that the men in question have trespassed beyond the bounds of medical ethics by accepting salaried positions with such a laboratory, and by allowing their names to be used in the advertising matter.

An attempt has been made, but unsuccessfully, to have this advertisement refused by the *Journal of the American Medical Association,* the blame for the failure being placed on the Advertising Committee, which apparently overruled the action of the trustees, or prevailed upon them to rescind it.

In arguing against the action of these men who have met with the disapproval of their colleagues, a comparison was drawn with a hypothetical surgical institute which might advertise in medical journals, quoting a scale of prices for various operations.

A fair judgment on the merits of this controversy—a judgment fair to both sides—would be obtained only with considerable difficulty. Man, in the subtle workings of his mind, is prone to substitute prejudice for opinion and to cleave to tradition rather than progress. Two questions are to be settled if we would judge this case rightly, and these are: "Have our common conceptions of ethics been violated?" and, "If so, are our conceptions of ethics unalterably fixed in that degree of excellence that knows no further progress?" In a general way, we may be justified in feeling that any code of ethics for any profession, guild, or individual in any walk of life might to a certain degree be modelled on the Golden Rule. Does a code of ethics modelled on secrecy, on collective self-protection fill our ideal requirements? The surgeon cannot advertise his skill or fee scale to his colleagues, but he can and does report a hundred operations performed by himself, by his own method, with 100 per cent. perfect results. The difference is between the direct and the outspoken and the indirect and implied. But after all, does the French horn make less noise than the clarinet because its wind has gone around a few corners?

The JOURNAL is not taking sides in this matter nor attempting to form an opinion. It is merely suggesting that a square may have four angles.

◆

THE RATIONAL ATTITUDE TOWARDS THE X-RAYS IN DIAGNOSING DIGESTIVE DISEASES.

The recent death of Röntgen should not make us oblivious to the fact that his epoch-making discovery has been distinctly a two-edged sword in the digestive field. Dr. Thomas R. Brown, of Baltimore, believes that in the case of a great many physicians, the x-rays have consciously or unconsciously persuaded them to be much less thorough in their careful analysis of the case and in their clinical studies, and this, we feel, is very deplorable, because from x-ray studies alone diagnosis should not, and in many cases cannot, be made. It is to Dr. Brown peculiarly distressing to see a diagnosis founded on very careful clinical study of the case overthrown by a few words from a radiologist, who often is untrained clinically and only too frequently has not had a broad experience in reading x-ray plates. While it is obviously easy to fluoroscope a patient and to take x-ray plates, nothing is more difficult than to explain the pictures on the screen, or to interpret the abnormalities of form or position as manifested in the plates. "I would rather," said recently a celebrated Italian internist, "have no x-ray examination in a case than x-ray plates interpreted by anyone other than a master in this field." To regard the x-ray as the court of last resort in diagnosis is fundamentally wrong except in gross conditions which can, in the majority of cases, be diagnosed just as definitely by other means. Except in such cases the x-ray diagnosis can rarely be definite—should only suggest various possibilities the probability of which must be dependent upon other features of the case. as determined by careful history taking, a thorough clinical examination, and the use of various special tests. The x-ray is but one of many means of reaching a diagnosis, none of which except in occasional instances is capable of furnishing the diagnosis *per se*, but each of which should be used in proper proportion in reaching a probable or, in rare instances, an absolute diagnosis. To show the difficulty even in the hands of experts, Dr. Brown suggests the advisability of having the same case studied under exactly the same conditions by various radiologists. In certain cases all will agree on the diagnosis. These, as a rule, are the easy cases, diagnosable by other means; but in a considerable proportion of cases very different diagnoses will be furnished by different men, all honest, all experienced, all capable in this field. The pictures are definite, the images on the screen are definite, but the interpretation always is a question of subjectivity, and must differ unless the picture is perfectly obvious.—*International Clinics*, March, 1923.

◆

RADIUM.

RADIUM is found in many countries of the world, including Bohemia, Portugal, Australia and England, but the United States has been the principal producer, H. E. Bishop, Eastern manager of the Radium Company of Colorado, informs us in *Science*.

It has been estimated that 150 grams of radium, costing approximately $20,000,000, have gone into consumption in the United States, of which 90 per cent. has come from the carnotite ores of southwestern Colorado and southeastern Utah. Two hundred to four hundred tons of ore have to be treated by complicated chemical procedures to produce one gram of radium.

Rich radium-bearing ores were discovered in 1913 in the Belgian Congo, and since the war facilities for working these deposits have been developed. These consist in transporting the ore 2000 miles down the Congo, across the ocean to Antwerp, and thence by rail to Colen, where the largest plant in the world for treatment of radium ore has been completed. Even this procedure is more economical than treating the ore at the mine, for the ore must be treated with acid, pound for pound. With the appearance on the market of the Belgian product the price of radium dropped to its lowest mark of $70 per milligram.

In the production of radium the ore is crushed, the radium leached out, and the solution treated with sulphuric acid to precipitate the insoluble radium barium sulphate. This precipitate is changed into the soluble carbonate and this resulting solution is converted into the bromide, and that in turn into the chloride. About 2200 separate crystallizations are required to produce radium chloride of 95 per cent. purity.

Radium breaks down successively into radium emanation, radium a, radium b, radium c, and radium d, gaining equilibrium with these decay products in approximately thirty days.

During this process of disintegration, three rays are given off—alpha, beta and gamma. The first has little penetrating power and is stopped by a sheet of paper. The second is more penetrating, while some of the third will penetrate ten inches of steel.

Radium gradually decays, 100 milligrams reducing to half that amount in 1760 years.

◆

HYGEIA—A NEW JOURNAL.

HYGEIA, the health journal for laymen, published by the American Medical Association, has made its initial appearance. If later issues measure up to the standard set by Volume I, Number 1, this publication will indeed be a valuable factor in education. In general appearance it is attractive, printed in large, clear type on good paper, and interestingly illustrated. The first number contains articles by Drs. Cannon de Schweinitz, Woglom, Surgeon-General Ireland, and other authorities. The articles are short, readable, and instructive, and contain enough information to bring the reader's knowledge up to date without overpowering him by details. There is a rather amusing page of cartoons and jokes, and another page of queries and answers.

The magazine should be a very important factor in keeping the public in touch with modern medicine. The medical profession should give it hearty support, and a prominent place on the waiting-room table.

◆

ATTEMPTS TO SECURE BIZARRE HEALTH LEGISLATION.

Two bills have been introduced in the Illinois Legislature which if enacted would carry evidence of hostility to public health officials. One would prevent physicians from acting as health officers in Illinois and the other provides that no person should be quarantined by a sanitarian except with the approval of a physician or practitioner in charge of the case.

The second bill would give to the drugless healers, so called, an unwarranted power, for a chiropractor might insist on adjusting the spine of a smallpox patient without any control from a public health standpoint. Even some regularly educated physicians do not work in coöperation with health officials.

It is probable that there are a sufficient number of sane people in Illinois to prevent the enactment of such laws.

DIPHTHERIA IN ILLINOIS.

By the use of antitoxin the mortality rate for diphtheria in Illinois has dropped during the past four years from 13.7 per hundred to 6.3 per hundred of reported cases.—Bulletin Chicago School of Sanitary Instruction.

Miscellany.

THE NATIONAL HEALTH COUNCIL.

This organization has published a review of the Sixty-Seventh Congress. Herewith is presented the summary of health legislation as it appears in Volume No. 1, Statement No. 45, under the title, "Review and Index Number."

REVIEW OF THE LEGISLATIVE STATEMENTS.

The National Health Council, a confederation of the leading national voluntary health agencies of the United States, began to function on January 1, 1921. Since one of its primary duties was to furnish to its members prompt, impartial and accurate information on national health legislation, these Bi-Weekly Statements were begun in March, 1921, under the auspices of the Washington Office. Statement No. 1 was a review of health legislation in the Sixty-Sixth Congress; Statements Nos. 2 to 45 have reported on action in the Sixty-Seventh Congress. In response to numerous requests the Statements were made available at cost price to non-members of the Council, so that they have been widely distributed in this and foreign countries. Included in the circulation, besides the members of the National Health Council, are all the state and territorial health officers of the United States and Canada, all the chiefs of the federal departments and bureaus interested in public health, all of the state medical societies affiliated with the American Medical Association, state tuberculosis and mental hygiene associations, directors of various national health organizations, libraries, and numerous individuals, embracing sanitarians, physicians, nurses and public health nurses, lawyers, teachers, editors, social workers, and various others interested in public health.

NUMBER OF BILLS AND LAWS.

During these four sessions of Congress over 21,000 bills and resolutions were introduced in both branches; 16,700 in the House and 5419 in the Senate. In our Statements we have listed about 350 bills and resolutions as being of direct interest to sanitarians. In other words, only 1.6 per cent. of the measures before Congress have dealt with public health. Nine hundred and thirty-one laws, of which 655 were public and 276 of private character, were placed on the statute books during the Sixty-Seventh Congress. Only 31 of these, or 3.3 per cent., have a direct bearing on public health. The health bills which passed include the following Public Laws:

HEALTH LAWS PASSED.

No. 47. Veterans' Bureau created. August 9, 1921. (H. R. 6611.)

No. 51. Packers' Act. Regulating interstate and foreign commerce in live stock and dairy products. (H. R. 6320.)

No. 74. Cincinnati Health Exposition, cancellation stamp for. October 10, 1921. (H. R. 8365.)

No. 78. Veterans in Hospitals, tobacco for. October 14, 1921. (S. 1718.)

No. 96. Anti-Beer Act, supplement to national prohibition law. November 23, 1921. (H. R. 7294.)

No. 97. Maternity and Infancy, promotion of welfare of (Sheppard-Towner law). November 23, 1921. (S. 1039.)

No. 110. Searcy Hospital for colored insane in Alabama, land for. (H. R. 6961.) November 5, 1921.

No. 125. Water Supply for Fort Monroe. (H. R. 7204.)

No. 129. Medical and Surgical Supplies transferred by Army to Russian relief. (S. 2708.) January 19, 1922.

No. 194, No. 216, and No. 273. Hospitals for Veterans. (H. R. 10864, H. R. 11547, H. R. 11588, respectively.) April 14, 1922; May, 1922; July 1, 1922.

No. 227. Narcotics prohibited from importation or exportation except for medicinal purposes. (H. R. 2193.) May 26, 1922.

No. 225. Pay of Army, Navy, Public Health Service, etc. (H. R. 10972.) June 7, 1922.

No. 318. Tariff Act. (H. R. 7456.) September 21, 1922.

No. 330. Leprosy Station in Hawaii. (H. R. 11589.) June 19, 1922.

No. 347. Coal Commission. (H. R. 12377.)

No. 352. Fees, surgeons of Pension Bureau. (S. 3540.) September 22, 1922.

No. 430. Federal Leprosarium, additional buildings for. February, 1923. (S. 3721.)

No. 460. War Risk Insurance, amendment concerning. March 2, 1923. (H. R. 10003.)

No. 463. Hospital in Arkansas, transfer. March 2, 1923. (H. R. 12751.)

No. 472. Sewage Drain at Miami, Florida. March 2, 1923. (H. R. 13272.)

No. 513. Filled Milk, prohibition of in interstate commerce. March 3, 1923. (H. R. 8086.)

No. 516. Reclassification of Government Positions and Salaries. March 3, 1923. (H. R. 8928.)

No. 542. War Risk Insurance, amendment concerning. March 3, 1923. (H. R. 14401.)

No. 519. Butter, standard for. March 3, 1923. (H. R. 12052.)

No. 536. Compensation for Injured Government employees. March 3, 1923. (H. R. 14222.)

And the following public resolutions:

No. 63. Disposal of articles produced by patients of Veterans' Bureau. (H. J. Res. 313.)

No. 65. Pollution of Navigable Waters convention. (H. J. Res. 297.) August, 1922.

No. 75. Water Supply of Kansas City, Missouri and Kansas. (S. J. Res. 216.)

No. 96. Narcotic Control, international cooperation in. March 2, 1923. (H. J. Res. 453.)

In looking over these 31 laws, it will be noted that a dozen or so are of considerable importance to national health. These include the acts for creating the Veterans' Bureau and the hospitalization of veterans, the maternity and infancy law, the anti-beer measure, the laws relating to narcotics, increase of pay for the Public Health Service, reclassification of government salaries, the tariff, the act increasing facilities at the Federal Leprosarium, and the filled milk law. There is, of course, some difference of opinion regarding a few of these laws, such as the maternity act and the filled milk law, but these dozen measures mentioned are the ones which will influence public health.

HEALTH BILLS NOT PASSED.

Since only 31 health bills became laws, about 320 failed of passage. Many of these were minor measures and some of them "freak" ones, and a large number never got out of committee. Among the more important health bills which did not pass may be mentioned: the resolutions to amend the Constitution relative to restriction of child labor; transfer of the activities of the Interdepartmental Social Hygiene Board to the Department of Justice; the Fess-Capper bill for Federal aid to physical education; commissions for sanitary engineers in the U. S. Public Health Service; reorganization of the U. S. Public Health Service; the uniform marriage and divorce bill; sale of Marine Hospital at Detroit; a number of bills relating to tuberculosis; and a couple of anti-vivisection measures. The District of Columbia, for which Congress legislates, fared particularly badly with respect to health measures. Bills to regulate milk, venereal diseases, optometry, and child welfare were unacted upon.

REPORT ON THE BACTERIOLOGICAL LABORATORY MAINTAINED BY THE NEAR EAST RELIEF IN THE CAUCASUS.

The Caucasus has always been a region of economic abundance, but owing to the ravages of war it has lost much of its prosperity during the past six years.

Probably no other district in the world presents a more interesting ethnological study than does the Caucasus. It is claimed that over fifty languages and dialects are used in this comparatively small geographical area. The predominant races are the Armenians, Georgians, Tartars and Russians. Owing to this mingling of all sorts of peoples from the ends of the Eastern world, this region has always been subject to more or less serious epidemics, threatening not only the well-being of the local inhabitants, but also that of adjacent European countries.

Due to war ravages, resulting in malnutrition and lessened physical resistance, diseases which formerly were fairly well held in check, became rampant, with consequent appalling mortality. Among the more virulent diseases were cholera, typhus, dysentery, typhoid, diphtheria, spinal meningitis, malaria, trachoma, favus and scabies. The Near East Relief coöperated with the various governments in their sincere efforts to control these sicknesses, and one feature of this coöperation was the establishment of a Near East Relief Bacteriological Laboratory. Several Russian scientists of high standing and wide reputation were secured at merely nominal salaries, and the Directorship was placed in the hands of Mr. A. Belovski-Joukowski, Ph.D. (Leipsic).

The equipment which the Near East Relief could place at the disposal of the Laboratory was very meagre, but the results, under the efficient devotion of the workers, have been such as to already check in a marked manner some of the serious outbreaks which had been occurring.

The following is a summary of the output of the Laboratory during the year 1922:

Antidiphtheritic serum	6.200	c.c., 2.480.000 units	
Divacine	120.000	c.c.	
Cholera vaccine	85.000	c.c.	
Typhoid vaccine	5.000	c.c.	
Tetra vaccine	5.000	c.c.	
Smallpox vaccine	270.000	vaccinations	
Antimeningitis serum	3.500	c.c.	
Piocianase	1.600	c.c.	
Lactobacilline	800	c.c.	
Yeast, medical	300	c.c.	
Gonococcus vaccine	300	ampules	300 c.c.
Staphylococcus vaccine	380	ampules	380 c.c.
Yeast for technical purposes	3	poods	20 funts
Testiculine	860	c.c.	
Haematogene	152	c.c.	
Abomasus ferment	200	c.c.	

These serums were used not only in Near East Relief institutions, but were distributed broadcast wherever needed through Government Health Bureaus, the Railway Health Bureau, and private practitioners. One definite result accomplished in 1922 was that the cholera epidemic failed to make its yearly appearance.

Bacteriological examinations have been made showing positive results for cholera, streptococci, abdominal typhoid, paratyphoid A, paratyphoid B, dysentery, diphtheria, gonococci, and cerebrospinal meningitis.

An interesting and valuable feature of the laboratory is the museum of rare and valuable bacterial cultures, of which 98 were added during the year. Among these were indicus, suirill rubrum, tuberculosis avis, piecis, taxine, cultures of diphtheria of institutes (Ehrlich-American Rockefeller Institute No, 8, Paris and Kharkov Institute), staphylococci of different origins (different species and types), and many other rare cultures.

During the year at different periods 22 doctors from various districts have arranged a month each in research work in the Laboratory, it being the policy of the Near East Relief to encourage local doctors in their research work by placing at their disposal the use of equipment which otherwise would not be available.

John C. Curran, M.D.,
Associate Director.

◆

THE STANDARDIZATION OF BIOLOGICAL STAINS.

On March 2, at the Chemists' Club in New York City, there was held a meeting of the Executive Committee of the Commission on Standardization of Biological Stains. The members of this committee are: H. J. Conn, Geneva; F. B. Mallory, Boston; L. W. Sharp, Ithaca, N. Y.; J. A. Ambler, Washington, D. C.; and S. I. Kornhauser, Louisville, Ky. The meeting was also attended by C. H. Herty, to represent the Synthetic Organic Chemical Manufacturers' Association, and by J. P. Garvan and W. F. Keohan, to represent the Chemical Foundation.

All physicians realize the need of dyes for staining specimens in the laboratory diagnosis and investigation of disease. It is not perhaps so generally realized that the dyes used for this purpose, in order to give constant results, must be of very precise chemical composition; and yet it is a very difficult matter for either the chemist or the biologist to control their composition. Before the war all stains were imported from a single German firm. This firm did not manufacture stains, but bought textile dyes in batches of considerable size, and after some preliminary testing bottled them and sold them under its own name to the biological laboratories of the world.

When the war broke out the American laboratory was deprived of this foreign source of stains. After the pre-war stocks already on hand had gvien out, much difficulty was experienced in getting stains of the quality necessary. The Society of American Bacteriologists began an investigation of American-made dyes that were being sold as biological stains. The results of this investigation were so promising that it proved possible to secure the assistance of the National Research Council, through whose agency a coöperative investigation was arranged among the members of several national societies. Recently the work has been organized under a special commission, independent of the Research Council but still representing the different national societies that were coöperating in the earlier work.

At the executive committee meeting of this Commission just held, the very encouraging results of the work were reported. It was shown that already the stains available in America are in practically all cases as good and sometimes better than the best of the pre-war stains. The most important fact brought out at this meeting was that while the pre-war stains were standardized only in an empirical way, by buying large batches without knowing the exact composition of the dye, they must now be standardized on the basis of pure chemicals.

The reason for this is because it is proven that in some cases the impurities present in the pre-war stains were very necessary. Sometimes these impurities were other dyes and sometimes supposedly inert materials like dextrin. In all such cases the task plainly before the Commission is to find out what the impurity is which was responsible for the good staining qualities of the impure product. Then in the future the users of stains must demand that these impurities be present, not as impurities, but as intentionally added ingredients. When this has been done and the products are labeled and used accordingly, the American stains will become standardized in a true sense of the term.

Very shortly the Commission will begin issuing certification of definite batches of stain that it has found satisfactory. These stains will be put on the market under a special label bearing the name of the Commission. Users of stains must be on the lookout for products bearing this label.

THE UNITED STATES PUBLIC HEALTH SERVICE AND PREVENTION OF DISEASE.

"The part played by the United States Public Health Service in the prevention of disease is not easy to evaluate," says Surgeon General H. S. Cumming. "Some kinds of prevention work, such as that of barring foreign diseases out of the country, are now wholly in its hands; and for the results of such—specifically for keeping out typhus, plague, and cholera, while they were ravaging Europe—the Service may fairly claim full credit. But most other kinds of prevention work in which it has been engaged have been carried on in greater or less part with the co-operation of State Health Officers.

"Preventing the spread of disease from one State to another differs markedly from preventing the importation of disease from abroad; and except for the co-operation of the State health authorities, it could have been efficiently carried out only with great difficulty. The United States has authority over interstate traffic; but the several States have sole jurisdiction over traffic within their borders; and co-operation as to health regulations is essential to the adequate protection of passengers. Through such co-operation, formerly conflicting regulations have been harmonized and agreed upon by the Public Health Service and by twenty States in whole and by most of the other States in part; and this has made travel in the United States relatively safe from the standpoint of health. For instance, drinking water on trains and steamboats, which not so very long ago was obtained almost anywhere and which now and then carried typhoid fever germs, must now be taken from sources that have been examined and certified by the State authorities and the Public Health Service jointly.

"Laboratory study of diseases is carried on chiefly by the Service; but field work, by which data for the investigation are obtained and the results are often tested, can be carried on successfully only through the co-operation of the States.

"In even more essentially co-operative work (rural hygiene, for example) it is difficult to say whether more credit for the great success of a particular work is due to the Public Health Service officer who directs, the State health officers who sustain him, or the citizens of the locality who toil so loyally to put the work across."

PNEUMOCOCCUS VACCINE.

Cecil, in the *American Journal of Public Health*, writes that he is employing an ordinary saline suspension of killed pneumococci in vaccinating against pneumonia, and is getting excellent results. Three billion of each of the three fixed types in 1 c.c. of saline solution is being used. The objection to the commercial vaccine, he finds, is insufficient concentration, as the pneumococci are combined with streptococci, staphylococci, B. catarrhalis, B. influenzae, etc. The reactions are usually quite mild. He advocates the use of vaccine by sailors, firemen, postmen, policemen, physicians and nurses, and individuals who are peculiarly susceptible to pneumonia.

The most effective immunity in monkeys has been produced by the intratracheal injection of antigen, and he believes that we may soon have a non-toxic water-soluble vaccine that can be used either subcutaneously or in an ordinary atomizer.

NOTE ON A CASE OF VERONAL POISONING.

Mrs. M. H., a widow, of 43 years of age, was seen on October 30, 1920. Diagnosis, septic finger, operation, removal of superficial nail, lateral incision of finger. Subsequent treatment, frequent wet dressings. There had been much pain in the finger previously, and the patient had been taking, on her own responsibility, a small amount of veronal for two or three nights. As there was much increase of pain for two days after incision of the finger, this was continued in the form of barbital, for a few nights more. In all, it was estimated that the patient had taken between 45 and 50 grains of veronal in about five days. The finger was better, and the veronal omitted. Some few days after the last dose, in the afternoon, the patient complained of feeling ill, there was nausea, and substernal oppression. The temperature was 101.4, and the pulse elevated. By evening the body was almost completely covered by a bright red rash, resembling somewhat the rash of measles, except for its bright color. It was most marked on the chest, arms, legs and thighs. Dr. E. Lawrence Oliver saw the patient with me, and made a definite diagnosis of veronal poisoning. The patient felt quite ill for some days. The rash gradually faded, but was most annoying. As there were no suitable facilities for caring for the patient at home, she was sent to the Massachusetts General Hospital, for convalescence. It took the patient some weeks to recover completely.

W. P. Coues, M.D.

PUBLIC HEALTH AS A LIFE CAREER.

On March 20, 1923, Dr. Allan J. McLaughlin. Director of the First District of the Public Health Service of the United States, spoke to the medical students of Tufts College Medical School on "Public Health as a Life Career." Following the recommendation of the Advisory Committee of the Surgeon General of the Public Health Service, of which Dr. David L. Edsall is the Chairman, the Service plans to send a representative to various universities to address audiences of students regarding the field of public health as a life career.

As has been brought out by a study of the reasons why medical students do not enter public health work, they are ignorant of the opportunities. As one student expressed it to Dr. E. O. Jordan, who was investigating the question: "There is no well recognized school of public health in the United States," and as another said, "I never heard of a public health school." These replies were received from students in some of our leading medical schools. Twenty-eight students in the universities of Chicago and California declared that they had never heard of a public school devoted to public health.

It is for these reasons that the recommendation of the committee was made, and it is expected that a great deal can be accomplished by this method of bringing public health before the attention of otherwise well educated persons

ENTERTAINMENT AND EDUCATION OF WAITING PATIENTS.

With the idea that the time of waiting for their turn at clinics could be made of educational value to the patients, the Boston Tuberculosis Association has been experimenting with the stereopticon at Boston Dispensary. A lantern has been purchased and volunteer operators give picture shows twice a week. The views are scenic or illustrative of health principles, like good ventilation, open-air school rooms, cleanliness and care of the teeth, and interspersed throughout these are legends that tell of good health practices. The waiting patients have not been the only ones to be interested, for the nurses and physicians linger a moment before the screen to catch a bit of Grand Canyon scenery or evaluate a health maxim. The volunteer operators are marshalled by Mrs. W. J. Dale of the Milton Hill House.

ADDITIONAL EVIDENCE FOR VACCINATION.

In an isolated village on the western coast of Japan, we are informed by the *Medical Press,* stands a statue of Edward Jenner, erected by a grateful people, once scourged by smallpox. A lesson might, but will not, be learned from this by more "advanced" but less grateful people who have also been saved from smallpox.

Massachusetts has compulsory vaccination. In Massachusetts last year two cases of smallpox were reported. In New York compulsory vaccination is limited to first and second class cities, and last year two hundred and forty-five cases occurred. The two major outbreaks occurred in Niagara Falls and Jamestown, neither of them a first or a second class city, and both reported to be centers of antivaccination activity.

Of the 245 cases reported, none occurred in first or second class cities, where pre-school vaccination is required; none had been vaccinated within seven years; 24 had been vaccinated more than seven years preceding the attack, and 213 had never been successfully vaccinated. Sometime, perhaps, an awakening will come to those who have eyes, but see not; who have ears, but hear not.

A MEETING OF REAL IMPORTANCE.

In another place will be found the preliminary program of the American Climatological and Clinical Association. The papers to be read are to be presented by authorities. The program is of great interest to practitioners. Time devoted to attendance will be well spent.

ANTIRABIC TREATMENT IN NEW YORK.

The New York Department of Health reports 3676 patients given antirabic treatment from 1914 to 1921 inclusive. Of the biting animals, 2221 were proven rabid. Eleven deaths from rabies occurred among the patients treated, one of them six months after the completion of the treatment.

News Items.

Professor Reid Hunt, of the Harvard Medical School, has been appointed visiting professor at the Peking-Union Medical College.—*Science.*

Legacy to the Springfield Hospital.—Under the provision in the will of Mrs. Martha Smith Ludington, the Springfield Hospital will be the residuary legatee. It is expected that the hospital will receive about $500,000.

The Prix de Carthage, a biennial prize founded in 1921 for scientific or historical work, has been awarded to Dr. Nicolle, of the Pasteur Institute of Tunis, for his investigations of typhus fever, kala-azar, trachoma and Malta fever.—*Science.*

Harvard Medical Society.—A meeting was held in the Peter Bent Brigham Hospital amphitheatre, Tuesday evening, April 3. A clinical demonstration, and a paper by Dr. Leroy Crummer of Omaha, "Early Anatomical Fugitive Sheets," made up the program.

The Lawrence Medical Club.—The monthly meeting of the club was held Monday evening, March 26, with Dr. J. J. O'Sullivan, at the Red Tavern, Methuen. The chairman for the evening was Dr. V. A. Reed, and the subject for discussion, "Cardiac Disease."

Gift to The Elliot Community Hospital, Keene, N. H.—Mr. and Mrs. Grenville of New York City and Dublin, N. H., have promised to give to the Elliot Hospital $10,000 as a memorial to their daughter. The money is to be used to provide a children's department.

Dr. Simeon B. Wolbach, of the Harvard Medical School, Boston, and Dr. Hideyo Noguchi, of the Rockefeller Institute for Medical Research, New York, are conducting at Hamilton, Montana, research work on Rocky Mountain spotted fever. Their work will continue for several months.—*Science.*

The Anti-Mosquito Association of Massachusetts is planning an active campaign against the mosquito this season. Many prominent citizens of this state are represented in the list of officers. Among them are Drs. Richard P. Strong, Eugene R. Kelley, F. X. Mahoney, Paul H. Provandi, Mary R. Lakeman, Francis P. Denny.

American Medical Association. — During March, the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies: Abbott Laboratories: Sulpharsphenamine—Abbott; Borcherdt Malt Extract Co.; Borcherdt's Cod Liver Oil and Iron Iodide; E. R. Squibb & Sons: Sulpharsphenamine—Squibb; Nonproprietary Article: Sulpharsphenamine.

Appointment.—Dr. A. G. Griffin, a long-time practitioner in Malden, Mass., has been appointed to the position of resident physician of the American Woolen Company's Community Centre at Shawsheen Village. Dr. Griffin will occupy a house erected for his use. He has been a member of the staff of the Malden Hospital from the time of its beginning, a period of over thirty years.

Clinical Meeting of Staff.—A clinical meeting of the general staff of the Sturdy Memorial Hospital of Attleboro was held at the hospital, Thursday, March 29, at 4 P.M. Program: "A Report of Two Cases of Retention of Urine," Dr. Kent; "Hydronephrosis," Dr. Rounseville. Discussion was opened by Dr. Shoemaker. A buffet lunch was served at the close of the meeting. Drs. J. W. Clarke, A. C. Conro, and W. F. Milot were the committee in charge.

Week's Death Rate in Boston.—During the week ending March 31 the number of deaths reported was 276, against 267 last year, with a rate of 18.68. There were 32 deaths under one year of age, against 43 last year. The number of cases of principal reportable diseases were: Diphtheria, 73; scarlet fever, 90; measles, 145; whooping-cough, 80; typhoid fever, 5; tuberculosis, 42. Included in the above were the following cases of non-residents: Diphtheria, 14; scarlet fever, 18; measles, 1; tuberculosis, 4. Total deaths from these diseases were: Diphtheria, 6; scarlet fever, 5; measles, 1; whooping-cough, 3; tuberculosis, 13. Included in the above were the following cases of non-residents: Scarlet fever, 2; tuberculosis, 2.

Weekly Health Index.—The Department of Commerce, Washington, gives the following summary of mortality reports from the largest cities of the United States. Telegraphic returns from 70 cities with a total population of twenty-nine million for the week ending March 24 indicate a mortality rate of 15.2 as against 15.1 for the corresponding week of last year. The highest rate (30.1) appears for Nashville, Tenn., and the lowest (7.2) for Springfield, Mass. The highest infant mortality rate (211) appears for Lynn, Mass., and the lowest for Duluth, Minn., which reported no infant mortality.

The annual rate for the 65 cities, which have sent in all weekly reports for 1922 and 1923, is 16.4 for the twelve weeks of 1923, against a rate of 15.3 for the corresponding period of 1922.

Influenza and pneumonia are less prevalent. Twelve cities show rates of 20 and over per 1,000 population, whereas for the corresponding week of last year 6 cities had such high rates.

Correspondence

VACCINATION.

Geneva, March 15, 1923.

Mr. Editor:

Jenner's first publication on vaccination, London, 1798, was reviewed by Dr. Louis Odier, of Geneva, in the *Bibliothèque Britannique*, a periodical published in Geneva, in the November and December issues of the same year, and it was by these articles that the Continent of Europe, at that time cut off from communications, was first given the news of Jenner's discovery.

In the following year, Odier translated and annotated Dr. Pearson's work on Cow-pox, which the translator termed *petite vérole des vaches*, but as he points out that this is a cumbersome term, he ventured to suggest the word "*vaccine*" derived from the Latin, *variola vaccina*. This appellation was universally accepted.

Dr. Odier obtained, in 1800, from Pearson some threads impregnated with virus with which he vaccinated 600 persons in Geneva. The spring of 1800 was murderous for Geneva as there was a severe epidemic of smallpox with 254 deaths, otherwise 110 deaths for every 10,000 inhabitants. Like London, Geneva became a centre for vaccination and the practice extended to the extent of 4,000 vaccinations in one year.

Several Geneva physicians were in England at this time and followed the progress made during the last years of the xviii century. Gaspard de la Rive studied medicine at Edinburgh where he upheld his thesis in 1797. In 1799, he was at the smallpox hospital in London, with Woodville, and sent an account of 2000 successful vaccinations performed by the latter, to the *Bibliothèque Britannique.*

His friend, Alexander Marcet, who settled in London, and was appointed physician to Guy's and St. Thomas also became actively engaged in propaganda of vaccination. To Marcet is due the credit of inventing the procedure for preserving the virus still employed today.

Another Geneva physician, Antoine Aubert, went to Paris in 1799, and translated Woodville's report on Cow-pox. Aubert obtained some virus from Woodville which was inoculated into three children in Prof. Pinel's service at the Salpêtrière, but unfortunately the virus sent was impregnated on linen and had lost its activity, so that the first attempt at Paris was a failure.

Then Aubert went to London and entered as a student at the smallpox hospital under Woodville and in 1800 he wrote a report in reply to questions submitted by the "*Commissaires*" of the Medical School of Paris.

Aubert next decided Woodville to bring his virus to Boulogne-sur-mer himself, where the latter successfully vaccinated three children. The virus taken from their arms was carried to Paris by Woodville and Aubert and inoculated in the arm of the son of a Mr. Colin, who furnished the virus to the Medical Vaccine Committee, which in turn supplied all France.

The last Geneva physician to be mentioned in connection with vaccination, is the celebrated Jean de Carro, who had settled in Austria. He was born in Geneva on August 8, 1770, and was the first continental physician to vaccinate successfully. In his *Mémoires*, published in 1855, at Carlsbad, he makes the following remarks. "A peine eus-je lu la découverte de Jenner, publiée en 1798, que je m'adressai à légation anglaise, pour me faire parvenir son ouvrage et du vaccin."

"Le 10 mai, 1799, j'eu lis l'essai sur mes deux fils, Charles et Pierre, le premier âgé de trois ans, le second d'un an et demi. Les pustules produites par le vaccin anglais sur les bras de mes enfants étaient parfaitement semblables à celles qu'on voyait gravées et coloriées dans l'ouvrage de Jenner. Au bout de deux mois, en présence de médecins autrichiens et étrangers, mes enfants furent soumis à la contre-épreuve de l'inoculation de la petite vérole, qui fut sans effet quelconque."

Thanks to Carro's perseverance, vaccination was practised throughout Austria and part of Germany, and Emperor Francis II knighted Carro for his work.

From Austria vaccination extended to Poland and Russia, being carried out with the virus sent by de Carro. It was successful in the hands of Mr. de Lyndström, surgeon to His Majesty. Anthony Petroff, the first child vaccinated in Russia, was baptized Vaccinoff by the Empress, and upon this occasion it was said that if de Carro was not, as in Austria, the father of vaccination, he was at least the grandfather.

Jenner was naturally delighted with de Carro's work and sent him a silver snuff box on which was engraved: Edward Jenner to Jean de Carro. Jenner did likewise to Dr. Benjamin Waterhouse, of Cambridge, Mass., who had introduced vaccination into the New World, as de Carro had in the Old.

De Carro died at Prague on March 12, 1857, at the ripe age of eighty-seven years.

To conclude I will quote from "*La Médecine à Geneve,*" published in 1906, by my regretted confrere Dr. Léon Gautier, who says: "Les médecins genevois m'auraient-ils d'autres titres a faire valoir que l'energie et la persévérance qu'ils ont déployées en faven de la vaccination, cela seul suffirait à leur mériter la reconnaissance de leurs concitoyens de la posterité."

CHARLES GREENE CUMSTON,
Lecturer on the History of Medicine and Medical Philosophy in the University of Geneva.

MATERNAL AND INFANT WELFARE.

Portland, Me., March 10, 1923.

Mr. Editor:

I have just been reading your report to the Massachusetts Medical Society on Maternal and Infantile Welfare, and I wish to thank you for its exceeding scientific aspect, although I am not familiar with the topic from a practical point of view. I write to you particularly to tell you that I am chairman of a "Committee on Outside Relations" for the Portland Medical Society, composed of about 125 members, and that at the next meeting, early in April, I intend to utilize briefly the conclusions of your committee.

I regret exceedingly that we could not have had them before for presentation and discussion before the Legislature of Maine, but in spite of such a wonderful paper as issued by your committee, we have accomplished a great deal in bringing about a change in public opinion against too much of the Sheppard-Towner law. The law passed the Representatives by a majority of about 10 out of 160 members and is now before the Senate. I have taken occasion to hand in to them such data as I already possessed, and I shall probably add some more points, from the conclusions of your committee, for their consideration when the bill comes up for discussion next week.

JAMES A. SPALDING.

THE CHICAGO LYING-IN HOSPITAL AND DISPENSARY.

Chicago, March 23, 1923.

Mr. Editor:

Would you kindly publish the following in your next issue?

A further study of hydatidiform mole has been undertaken at this hospital, especially in regard to the frequency of malignancy following this condition. An attempt is being made to collect case reports from outside physicians. Cases reported by physicians will be greatly appreciated and the physician will be given due credit in any literature published.

Address communications to

ROBERT B. KENNEDY, M.D.,
Chicago Lying-in Hospital,
Chicago, Ill.

AN OPPORTUNITY TO EXERT INFLUENCE.

March 12, 1923.

Mr. Editor:

Referring to the case of Dr. Landesman, who was recently prosecuted in Court for the assault on a Federal Officer in the performance of her duty. I wish to say that I think that it is the duty of this JOURNAL and the Medical Society, to take action for the dismissal of this Federal Officer, who places the reputation and practice of a doctor of medicine in jeopardy. Regardless of the acquittal of the Court it is hard to convince the public that Dr. Landesman was not carrying on an illegitimate business, and in some communities a condition like this would ruin a man very soon.

Hoping to hear from you regarding this matter, I am,

NICHOLAS DUVALLY.

NOTICES.

PRELIMINARY PROGRAM OF THE AMERICAN CLIMATOLOGICAL AND CLINICAL ASSOCIATION.

FORTIETH ANNUAL MEETING AT NIAGARA FALLS, ONTARIO, MAY 23, 24, 25, 1923.

President: Charles W. Richardson, Washington, D. C.; vice-presidents: Will Howard Swan, Colorado Springs; George W. Norris, Philadelphia; secretary and treasurer: Arthur K. Stone, Framingham Center, Mass.; recorder: Cleaveland Floyd, Boston.

PROGRAM OF SCIENTIFIC SESSIONS.

Hotel Clifton, Niagara Falls, Ontario

WEDNESDAY, MAY 23, 1923, 10 A. M.

President's Address.
Charles W. Richardson, Washington, D. C.

Memorial Notice.

Walter B. Platt. Presented by Louis V. Hamman.

Cardiac Meeting.

1. Angina Pectoris. By C. H. Johnston.
2. Angina Pectoris and Coronary Thrombosis. By G. R. Butler.
3. Nerve Supply of the Heart in Relation to the Treatment of Angina. By P. K. Brown.
4. An Appraisement of the Examination of the Heart without the Instruments of Precision. By Francis J. Dever.
5. What May Be Expected from the Treatment of Syphilitic Aortitis. By Thomas A. Claytor.
6. Chronic Heart Disease Relieved by Systematic Movements. (To be read by title.) By J. Madison Taylor.

Business Meeting 12 M.

WEDNESDAY, MAY 23, 1923, 2.30 P. M.

Roentgen Ray Subjects.

7. New Growths in the Lung. (With roentgenograms.) By J. N. Hall.
8. An X-Ray Study of the Chest of 1200 Supposedly Normal Children Before and After Ether Anesthesia for Tonsil-Adenoid Operation. (With slides.) By Dr. J. H. Greene and John J. Lloyd.
9. A Review of the Knowledge Obtained by X-Ray Examination of the Chest. By Kennon Dunham.
10. Three Cases of Broncho-Pneumonia Closely Simulating Lung Abscess with the X-Ray. By David R. Lyman.
11. Frequency of Tuberculous Infection of the Lungs Associated with So-called Surgical Tuberculosis and the Behavior of the Pulmonary Lesion. By John H. Pryor.
12. Surgical Treatment of Pulmonary Tuberculosis. By Ralph C. Matson, Ray W. Matson, and Marr Bisaillon, M.D.
13. Some Lessons Learned from Comparison of Chest Roentgenograms and Physical Findings in Fifteen Hundred Cases Covering Four Years' Experience with Tuberculous Ex-Service Men. By A. F. Miller.

THURSDAY, MAY 24, 1923, 9 A. M.

Tuberculosis Meeting.

14. Laryngeal Tuberculosis, with Report on Results Obtained in 114 Cases. By C. D. Parfitt.
15. Report. By Walter Rathbun.
16. Diagnosis of Pulmonary Tuberculosis in Children. By Harry Lee Barnes.
17. Problem of Fluid in the Chest. By Paul H. Ringer.
18. (Title later.) By Lawrason Brown.
19. Chronic Bronchitis. By John B. Hawes, 2nd.
20. Interpretation of Râles. By Hugh M. Kinghorn.
21. Spontaneous Pneumothorax. By Walter C. Klotz.

THURSDAY, MAY 24, 1923, 2.30 P. M.

General Subjects.

22. A Consideration of the Polyarthritides from the Standpoint of the Internist. By John A. Lichty.
23. Therapeutic Value of Counter-Irritation. By Herbert F. Williams.
24. Insufficient Hemoglobin the Fundamental Cause of Symptoms Induced by Altitude. By Judson Daland.
25. Silicosis in Ontario Gold Miners. By Jabez H. Elliott.
26. Myxedema. By John M. Swan.
27. Report. By W. G. Schauffler.
28. Postpartum Infarct of the Lung. By J. Roddick Byers.
29. The Teaching of Tuberculosis to Medical Students. By David A. Stewart.

The following members have promised papers but have not sent the titles: Charles W. Crankshow, Thomas Klein, C. E. Edson, W. L. Dunn, Charles C. Browning, Robert H. Babcock.

Annual Dinner, Hotel Clifton.

FRIDAY, MAY 25, 1923, 9 A. M.

Scientific Session.

Notes.

It was expected that this day would be devoted entirely to visits to one of the large steel mills in the neighborhood of Buffalo, or that those who wished could visit Toronto to see a demonstration of the new work upon diabetes, or to Perryville to see the work in heliotherapy, but the number of papers offered make it probable that there will have to be a scientific session on Friday morning and that only the afternoon can be devoted to sightseeing.

Members can best reach Niagara Falls by going to Buffalo and thence to Niagara Falls by taxi-cab or trolley.

BOSTON TUBERCULOSIS ASSOCIATION INSTITUTE FOR NURSES.

The Boston Tuberculosis Association is to give this month an Institute for Nurses following the same general plan as that of last year. It will be given in the hall of the New England Women's Club, No. 585 Boylston Street, Boston, on Friday, April 13, with two sessions. The following is the program:

Morning Session.

10.30 a.m. to 12.30 p.m.

Dr. Sumner H. Remick, Director Division of Tuberculosis, Massachusetts Department of Public Health, Chairman.

Dr. Murray T. Horwood, Department of Biology and Public Health, Massachusetts Institute of Technology, "Tuberculosis Surveys and the Value of Accurate Records."

Miss Margaret Sawyer, Director Nutrition Work, American Red Cross, "Nutrition in Its Relation to Tuberculosis."

Dr. John B. Hawes, 2d, President Boston Tuberculosis Association, "The Essential Factors in Our Campaign Against Tuberculosis."

Discussion: Miss Mary A. Nelson, Director Division of Nursing, American Red Cross; Miss Frances Stern, Food Technician, Boston Dispensary.

Afternoon Session.

2 p.m. to 4 p.m.

Miss Bernice W. Billings, Executive Secretary, Boston Tuberculosis Association, Chairman.

Miss Eunice H. Dyke, Director Public Health Nursing, Department of Public Health, Toronto, Canada, "Tuberculosis Nursing in a Generalized Program."

Dr. Eugene R. Kelley, State Commissioner of Public Health, "The Tuberculosis Problem in Massachusetts."

Discussion: Miss Mary Beard, Director Community Service, Boston; Miss Margaret Weir, Executive Secretary and Dispensary Nurse, Beverly, Mass.; Miss Mildred Ashley, Nursing Assistant Massachusetts Department of Public Health.

Tea will be served.

In presenting this program the Association has had the hearty coöperation of the Massachusetts Department of Public Health.

BOSTON MEDICAL HISTORY CLUB.

The Annual Meeting of the Boston Medical History Club will be held at the Boston Medical Library, Monday, April 16, at 8.15 p.m.

Report of Nominating Committee.

Election of Officers.

Benjamin Church, Jr., Director-General of the Hospital (First Surgeon-General) of the American Army, Traitor or Arbitrator? A presentation of his (manuscript) medical note books with a discussion of his culpability by Timothy Leary, M.D.

Dr. J. B. Blake will show a rare engraving of the "Death of George Washington."

Exhibition of the Ernest Boyen Young Collection of Medical Prints, recently presented to the Boston Medical Library.

Light refreshments after the meeting.

JOHN W. CUMMIN, M.D.,
Secretary.

THE BOSTON SURGICAL SOCIETY WILL ENTERTAIN THE TRI-STATE MEDICAL SOCIETY.

The Tri-State Medical Society, made up of representative physicians practicing in Iowa, Illinois and Wisconsin, is making a tour of the Eastern cities and will be entertained by the Boston Surgical Society, April 17 and 18.

Mornings will be given over to hospital clinics, and the afternoons to meetings at the medical schools. On the evening of the 17th the society will be given a dinner at the Harvard Club, and it is expected that President Lowell and others will speak.

BOSTON CITY HOSPITAL.

A Staff Clinical Meeting will be held in the Cheever Surgical Amphitheatre on Friday evening, April 13, at 8 o'clock. Program: 1. A Preliminary Report of the Department of Oral Surgery, S. P. Mallett. 2. Report of the Massage Department, Hartvig Nissen. Open discussion. Physicians and students invited. Refreshments served at 9.30 o'clock.

JOHN J. DOWLING,
Superintendent.

MIDDLESEX SOUTH DISTRICT.

The annual meeting of this society will be held April 18 (Wednesday) at the American House, Hanover Street, Boston. The meeting will be called to order promptly at 11 A. M. The annual dinner will be served at one o'clock.

FREDERICK B. M. CADY, M.D.,
Secretary.

CHILDREN'S HOSPITAL.

The visiting staff of the Children's Hospital will hold a clinical meeting in the amphitheatre of the hospital, Friday, April 13, at 4.30 p.m. Demonstration of cases. Physicians are cordially invited to attend.

NOTICE TO MASSACHUSETTS MEDICAL SOCIETY MEMBERS.

In accordance with information furnished by the Treasurer of the Massachusetts Medical Society, the names of members who have failed to pay the annual dues have been taken from the mailing list. Any member who feels that an error has been made should notify this office or the Treasurer and corrections will be made.

NOTICE TO DIRECT SUBSCRIBERS.

Our mailing list has just been revised. If the JOURNAL does not arrive and you are entitled to receive it, please notify us. Please give full details about date of order, etc.

PUBLIC HEALTH LECTURERS FOR THE YEAR 1923.

The Committee on Public Health of the Massachusetts Medical Society has been able during the past few years to arrange with well known specialists in various medical fields to give talks at meetings of the District Medical Societies on subjects of interest and importance to all practitioners. It is a pleasure to announce that a similar arrangement has been made this year and that the gentlemen named below are willing, without expense to the District Society, to give occasional talks of thirty to forty minutes on subjects relating to the promotion of public health, extending opportunity for questions and discussion. It is suggested that medical societies consider meeting at neighboring public institutions, since such meetings have been most successful in the past, particularly at the tuberculosis sanatoria and state hospitals for the insane.

José Penteado Bill, M.D., Doctor of Public Health. Specialty: Preventive Medicine.

Frank C. Dunbar, M.D., Bacteriologist, Instructor in Bacteriology and Pathology, Tufts College Medical School. "Methods of Technique in Collecting Specimens."

Walter E. Fernald, M.D., Superintendent, Massachusetts School for the Feeble-minded.

Timothy Leary, M.D., Professor of Pathology, Tufts College Medical School; Medical Examiner, Suffolk County.

Herman A. Osgood, M.D., X-Ray Department of the Boston City Hospital; "Focal Infection."

Edwin H. Place, M.D., Physician-in-Chief, South Department, Boston City Hospital. Specialty: Contagious Diseases.

C. Morton Smith, M.D., Chief of Department of Syphilis, Massachusetts General Hospital.

George Gilbert Smith, M.D., Assistant in Department of Genito-Urinary Diseases, Massachusetts General Hospital. Specialty: Genito-Urinary Diseases.

Lesley H. Spooner, M.D., on Staff of Out-Patient Department, Massachusetts General Hospital. Specialty: Specific Diagnosis and Treatment of Pneumonia.

George H. Wright, D.M.D., Lecturer on Dental Hygiene, Harvard Dental School. Specialty: Dental Surgery.

Thomas F. Kenney, M.D., Director of School Hygiene, City of Worcester. Specialty: Full-Time School Health Officer.

Paul Dudley White, M.D., Chief of Medical Out-Patient Department and of the Cardiac Clinics, Massachusetts General Hospital. Specialty: Cardiovascular Diseases.

Gilman Osgood, M.D.: "A General Practitioner's Observations on the Relation of Oral Infection to Disease."

Hugh Grant Rowell, M.D., Director of Health and Hygiene, Department of Schools: "Preventive Medicine in Schools under a Full-Time Medical Director, or Public Health Work."

Secretaries of District Medical Societies, writing to ask for these lecturers, will kindly designate the topic, the place and the hour of meeting as well as the name of the desired speaker, thus eliminating unnecessary correspondence. Please address communications to the Secretary of the Committee, Annie Lee Hamilton, M.D., 164 Longwood Ave., Boston 17.

INVITATION TO PHYSICIANS.

Members of the medical profession are cordially invited to join in staff rounds on the medical service of the Peter Bent Brigham Hospital. These are held Saturday mornings from 10 to 12 in the medical wards. They consist of the demonstration and discussion of selected cases showing features of unusual interest or those on whom the diagnosis is not clear. Visitors can join in the visit for any part of this 10-to-12 period.

HENRY A. CHRISTIAN,
Physician-in-Chief, Peter Bent Brigham Hospital.

SOCIETY MEETINGS.

The annual meeting of the Massachusetts Medical Society will be held in Pittsfield, June 12 and 13.

DISTRICT SOCIETIES.

A list of society meetings is herewith published. This list will be changed on information furnished by the secretaries of the societies, and will appear in each issue.

Barnstable District:—Hyannis, May 5, 1923.

Bristol North District:—Annual Meeting at Taunton, April 26.

Bristol South District:—Fall River, May 3, 1923.

Essex North District:—Lawrence, Y. M. C. A. Building (Annual Meeting), May 9, 1923.

Meetings of the Suffolk District and the Boston Medical Library, at the Library:

April 25, 1923:—Annual Meeting. Election of Officers. "The Record of the Past Twelve Years in Syphilology, with a Forecast of the Future." A series of 10-minute papers. Dr. C. Morton Smith, Boston, will preside.

Middlesex East District:

April 18, 1923:—Interpretation of Laboratory Findings. Papers by Dr. E. G. Crabtree and one to be announced later.

May 9, 1923:—Annual Meeting.

All meetings except the Annual Meeting will be held at the Harvard Club in Boston. A. E. Small, Secretary.

Worcester District meetings are scheduled as follows:

May 9, 1923:—Annual Meeting and banquet.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

NEW ENGLAND PEDIATRIC SOCIETY:—The following are the dates for meetings the coming season. Each meeting is on the second Friday of the month at the Boston Medical Library: April 13 and May 11.

April, 1923:—Massachusetts Association of Boards of Health, April 26, 1923, Boston; W. H. Allen, Mansfield, Mass., Secretary.

April, 1923:—Boston Medical History Club will meet the third Monday of this month.

April, 1923:—Massachusetts Public Health Conference will be held in Springfield, April 26-28, inclusive. Dr. Eugene R. Kelley, Chairman.

May, 1923:—Massachusetts Society of Examining Physicians (date and place undecided). American Pediatric Society meeting, May, 31, June 1 and 2, 1923, at French Lick Springs Hotel, French Lick, Ind.; H. C. Carpenter, Secretary.

May, 1923:—Boston Association of Cardiac Clinics. Meeting May 17, 1923, at 8.15 P. M., Children's Hospital. Subject: Rheumatism and Chorea and Heart Disease.

June, 1923:—American Medical Association, San Francisco, June 25-29, 1923; Olin West, Chicago, Ill., Secretary.

July, 1923:—Massachusetts Association of Boards of Health, July 26, Nantasket; W. H. Allen, Mansfield, Mass., Secretary.

October, 1923:—Boston Health Show will be held in Boston, October 6-13, inclusive.

October, 1923:—Meeting of the American Health Association will be held in Boston, October 8-13, inclusive.

UNITED STATES CIVIL SERVICE EXAMINATION.

The United States Civil Service Commission announces an open competitive examination for Junior Biochemist. The examination will be held throughout the country on April 25 to fill vacancies in the Public Health Service. At present there is a vacancy in the position of technical assistant in sanitary bacteriology, at Cincinnati, Ohio, at an entrance salary of $1,800 a year, plus the increase of $20 a month granted by Congress.